

=> file reg

FILE 'REGISTRY' ENTERED AT 13:00:40 ON 07 APR 2003  
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STRUCTURE FILE UPDATES: 6 APR 2003 HIGHEST RN 501901-52-6  
DICTIONARY FILE UPDATES: 6 APR 2003 HIGHEST RN 501901-52-6

=> d his

(FILE 'HOME' ENTERED AT 09:49:12 ON 07 APR 2003)

FILE 'REGISTRY' ENTERED AT 09:49:51 ON 07 APR 2003  
ACTIVATE SZEKELY306/A

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L1 STR  
L2 SCR 1771  
L3 SCR 1312  
L4 9203 SEA FILE=REGISTRY SSS FUL L1 AND L3 AND L2  
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FILE 'LREGISTRY' ENTERED AT 09:50:56 ON 07 APR 2003  
L5 STR

FILE 'REGISTRY' ENTERED AT 10:13:28 ON 07 APR 2003  
L6 1 S L5 SSS SAM SUB=L4

FILE 'LREGISTRY' ENTERED AT 10:14:36 ON 07 APR 2003  
L7 STR L6

FILE 'REGISTRY' ENTERED AT 10:22:07 ON 07 APR 2003  
L8 50 S L7 SSS SAM SUB=L4  
L9 960342 S PMS/CI  
L10 2 S L8 NOT L9  
L11 4 S L8 AND (0-10/CL OR 0-10/BR)

FILE 'LREGISTRY' ENTERED AT 10:36:51 ON 07 APR 2003  
L12 STR L5

FILE 'REGISTRY' ENTERED AT 11:31:59 ON 07 APR 2003  
L13 5 S L12 SSS SAM SUB=L4

FILE 'LREGISTRY' ENTERED AT 11:33:21 ON 07 APR 2003

FILE 'REGISTRY' ENTERED AT 11:34:36 ON 07 APR 2003  
L14 183 S L12 SSS FULL SUB=L4  
SAVE SZEK306A/A L14

FILE 'LREGISTRY' ENTERED AT 11:36:37 ON 07 APR 2003

FILE 'HCA' ENTERED AT 11:38:30 ON 07 APR 2003  
L15 224 S L14

FILE 'REGISTRY' ENTERED AT 11:39:12 ON 07 APR 2003  
L16 148 S L14 NOT 0-10/NR  
L17 9 S L16 AND 1-10/N  
L18 139 S L16 NOT L17  
L19 120 S L18 AND 1/NC  
L20 0 S L19 AND (1-10/F OR 1-10/CL OR 1-10/BR)

FILE 'HCA' ENTERED AT 11:46:28 ON 07 APR 2003  
L21 183 S L19

FILE 'REGISTRY' ENTERED AT 11:48:05 ON 07 APR 2003  
L22 SCR 1918  
L23 119 S L19 NOT 0-10/M

FILE 'HCA' ENTERED AT 11:49:14 ON 07 APR 2003  
L24 183 S L23  
L25 180 S L24 AND 1907-2001/PY  
L26 175 S L24 AND 1907-2000/PY  
L27 170 S L24 AND 1907-1999/PY  
L28 344008 S 37/SC,SX  
L29 7 S L27 AND L28  
L30 163 S L27 NOT L29

FILE 'LREGISTRY' ENTERED AT 12:00:19 ON 07 APR 2003

FILE 'HCA' ENTERED AT 12:01:25 ON 07 APR 2003  
L31 827641 S 36/SC,SX OR 38/SX,SC OR 39/SC,SX  
L32 7 S L27 AND L31  
L33 14 S L29 OR L32  
L34 156 S L30 NOT L33  
L35 27814 S HEAT?(N) STABIL?  
L36 1 S L34 AND L35  
L37 5 S L33 AND L35  
L38 15 S L33 OR L36 OR L37  
L39 155 S L34 NOT L38  
SAVE L39 SZEK306AA/A

FILE 'LREGISTRY' ENTERED AT 12:04:57 ON 07 APR 2003  
L40 STR L7

FILE 'REGISTRY' ENTERED AT 12:09:28 ON 07 APR 2003  
L41 SCR 1838  
L42 50 S L40 NOT L22 SSS SAM SUB=L4  
L43 SCR 2036  
L44 50 S L40 NOT (L22 OR L43) SSS SAM SUB=L4  
L45 SCR 1992  
L46 50 S L40 NOT (L22 OR L45) SSS SAM SUB=L4  
L47 4 S L46 AND 1-20/X  
L48 24 S L46 AND 1-2/NC  
E POLYVINYL CHLORIDE/CN  
L49 1 S E3  
E POLYVINYLIDENE CHLORIDE/CN  
E POLYVINYL BROMIDE/CN  
E POLYETHYLENE/CN  
L50 1 S E3  
E RUBBER/CN

L51 1 S E3  
E POLYCHLOROPRENE/CN  
L52 1 S E3  
E POLYSTYRENE/CN  
L53 1 S E3  
L54 2 S L49 OR L52

FILE 'HCA' ENTERED AT 12:19:21 ON 07 APR 2003

L55 91057 S L54  
L56 10523 S L50(L) (HALOGEN? OR FLUOR? OR CHLORI? OR BROMID?)  
L57 0 S L51(L) (HALOGEN? OR FLUOR? OR CHLORI? OR BROMID?)  
L58 6500 S L53(L) (HALOGEN? OR FLUOR? OR PERFLUORO? OR CHLOR? OR PERCHLOR  
L59 0 S L51(L) (HALOGEN? OR FLUOR? OR PERFLUORO? OR CHLOR? OR PERCHLOR  
L60 103905 S L55 OR L56 OR L58 OR L51

FILE 'LCA' ENTERED AT 12:23:35 ON 07 APR 2003

L61 389 S POLYVINYLCHLORID? OR PVC OR (POLYVINYL# OR POLYETH? OR STYREN

FILE 'REGISTRY' ENTERED AT 12:28:41 ON 07 APR 2003

L62 50 S L40 NOT (L22 OR L45) SSS SAM SUB=L4  
L63 50 S L40 NOT L45 SSS SAM SUB=L4  
L64 50 S L40 NOT L45 SSS SAM SUB=L4  
L65 1141 S L40 NOT L45 SSS FULL SUB=L4  
SAVE L65 SZEK306B/A

FILE 'HCA' ENTERED AT 12:30:51 ON 07 APR 2003

L66 1398 S L65

FILE 'REGISTRY' ENTERED AT 12:30:58 ON 07 APR 2003

L67 0 S L65 AND (L49 OR L52)  
L68 0 S L65 AND (L49 OR L50 OR L53)

FILE 'HCA' ENTERED AT 12:34:09 ON 07 APR 2003

L69 113363 S L61  
L70 141867 S L69 OR L55 OR L58 OR L60 OR L51  
L71 101 S L66 AND L70  
L72 96 S L71 AND 1907-2000/PY

FILE 'LREGISTRY' ENTERED AT 12:37:24 ON 07 APR 2003

FILE 'REGISTRY' ENTERED AT 12:37:36 ON 07 APR 2003

FILE 'HCA' ENTERED AT 12:38:28 ON 07 APR 2003

L73 76 S L72 AND (L28 OR L31)  
L74 51123 S HEAT(2N) (STABL? OR STABIL? OR DEGRAD?)  
L75 41 S L73 AND L74  
L76 39 S L75 NOT (L38 OR L39)

FILE 'REGISTRY' ENTERED AT 12:46:21 ON 07 APR 2003

L77 1141 S L65 NOT L39  
L78 1135 S L65 NOT L14  
L79 943 S L78 AND 1-3/NC  
L80 644 S L78 AND 1-2/NC

FILE 'HCA' ENTERED AT 12:48:49 ON 07 APR 2003

L81 1358 S L79  
L82 1265 S L80  
L83 91 S L82 AND L61  
L84 80 S L82 AND L60  
L85 99 S L83 OR L84

← Publication Year  
1907-2000

← Limited number of  
Components

```

L86          46 S L85 AND L74
L87          831285 S L85 AND STABL? OR STABIL?
L88          63 S L85 AND (STABL? OR STABIL?)
L89          12 S L83 AND PLASTICI?
L90          53 S L86 OR L89
L91          5 S L86 AND PLASTICI?
L92          12 S L89 OR L91
L93          67 S L81 AND HEAT(2N) (STABL? OR STABIL? OR DEGRAD?)
L94          5 S L93 AND PLASTICI?
L95          12 S L89 OR L91 OR L94
L96          81 S L81 AND (HEAT OR THERMAL) (2N) (STABL? OR STABIL? OR DEGRAD?)
L97          6 S L96 AND PLASTICI?
L98          12 S L95 OR L97
L99          41 S L86 NOT L98

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FILE 'LREGISTRY' ENTERED AT 13:00:06 ON 07 APR 2003

FILE 'REGISTRY' ENTERED AT 13:00:40 ON 07 APR 2003

=> d que stat L14

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L1          STR
           11          12
            O           C
            ||          }
O---C        S 6
1      2      E1

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CONNECT IS E1 RC AT 6  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

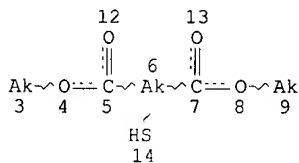
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

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L2          SCR 1771
L3          SCR 1312
L4          9203 SEA FILE=REGISTRY SSS FUL L1 AND L3 AND L2
L12         STR

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*Peter,*  
← This is for Claim 1

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L14 183 SEA FILE=REGISTRY SUB=L4 SSS FUL L12

100.0% PROCESSED 4400 ITERATIONS

183 ANSWERS

SEARCH TIME: 00.00.12

=&gt; d que stat L65

L1 STR



NODE ATTRIBUTES:

HCOUNT IS E1 AT 6

CONNECT IS E1 RC AT 6

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 5

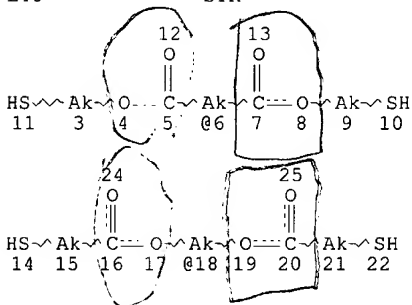
STEREO ATTRIBUTES: NONE

L2 SCR 1771

L3 SCR 1312

L4 9203 SEA FILE=REGISTRY SSS FUL L1 AND L3 AND L2

L40 STR



Peter,  
This is for  
G1 26

claim 4

VAR G1=6/18

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 23

STEREO ATTRIBUTES: NONE

L45 SCR 1992

L65 1141 SEA FILE=REGISTRY SUB=L4 SSS FUL L40 NOT L45

100.0% PROCESSED 1599 ITERATIONS

1141 ANSWERS

SEARCH TIME: 00.00.01

=&gt; file hca

FILE 'HCA' ENTERED AT 13:01:04 ON 07 APR 2003

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FILE COVERS 1907 - 3 Apr 2003 VOL 138 ISS 15

FILE LAST UPDATED: 3 Apr 2003 (20030403/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=&gt; d L38 1-15 cbib abs hitind hitstr

*publication year*

L38 ANSWER 1 OF 15 HCA COPYRIGHT 2003 ACS

128:205227 Diisocyanate derivatives and their use in making optical lenses. Kawauchi, Keiya; Suzuki, Yoshiyuki; Kobayashi, Seiichi; Imai, Masao; Fujii, Kenichi (Mitsui Toatsu Chemicals, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 10045707 A2 **19980217** Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-280400 19960730.

AB Sulfur-contg. diisocyanate deriv. OCN(R')nNCO (R = ethylene, propylene, 2-thiapropylene; R' = methylthio, methylthiomethylthio; n = 1-3) is synthesized. An optical resin compn. having high refractive index comprises the diisocyanate and at least one polythiol compd. The resin compn. can be polymd. to provide optical lenses.

IC ICM C07C323-45

ICS C08G018-77; G02B001-04

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 23, **38**

IT **17660-58-1P**, Diethyl 2,3-dimercaptosuccinate 56078-31-0P  
90647-87-3P 204063-03-6P 204063-04-7P 204063-05-8P 204063-06-9P  
204063-07-0P 204063-08-1P 204063-09-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(prepn. of diisocyanate derivs. for making optical lenses)

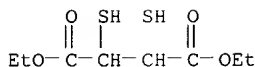
IT **17660-58-1P**, Diethyl 2,3-dimercaptosuccinate

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(prepn. of diisocyanate derivs. for making optical lenses)

RN 17660-58-1 HCA

CN Butanedioic acid, 2,3-dimercapto-, diethyl ester (9CI) (CA INDEX NAME)



publication year = 1997

L38 ANSWER 2 OF 15 HCA COPYRIGHT 2003 ACS

127:96339 Sulfur-containing (meth)acrylates for manufacture of scratch-resistant plastic lenses with high refractive index. Kobayashi, Seiichi; Kawauchi, Keiyo; Suzuki, Yoriyuki; Imai, Masao; Fujii, Kenichi (Mitsui Toatsu Chemicals, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 09143153 A2 19970603 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-302729 19951121.

AB Compds.  $\text{X}[\text{CO}_2(\text{CH}_2)_n\text{SCOCR:CH}_2]_m$  [R = H, Me; X =  $\text{H}_2\text{C:CRCOS}(\text{CH}_2)_r$ ,  $\text{CH}(\text{SCOCR:CH}_2)\text{CH}_2$ ,  $\text{CH}(\text{SCOCR:CH}_2)\text{CH}(\text{SCOCR:CH}_2)$ ; m = 1, 2; n, r = 1-3] are prep'd. and polym'd. Thus, polymg. acryloylthioethyl acryloylthioacetate in the presence of tert-Bu peroxy-2-ethylhexanoate and 2-hydroxy-2-methyl-1-phenylpropane-1-one in a mold gave a transparent lens with refractive index 1.591, Abbe no. 38.6, and good scratch resistance.

IC ICM C07C327-28

ICS C08F020-38; C08F220-38; G02B001-04; G02C007-02

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 23, 35, 73

IT 38705-47-4P, 2-Mercaptoethyl thioglycolate 123097-82-5P

123173-76-2P 192130-47-5P 192130-48-6P 192130-49-7P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(sulfur-contg. (meth)acrylate polymers for scratch-resistant lenses)

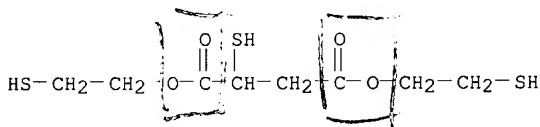
IT 123097-82-5P 123173-76-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(sulfur-contg. (meth)acrylate polymers for scratch-resistant lenses)

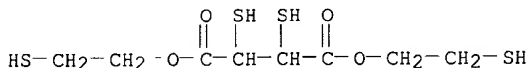
RN 123097-82-5 HCA

CN Butanedioic acid, mercapto-, bis(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



RN 123173-76-2 HCA

CN Butanedioic acid, 2,3-dimercapto-, bis(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



L38 ANSWER 3 OF 15 HCA COPYRIGHT 2003 ACS

111:175367 Polythiols as resin improvers. Kanemura, Yoshinobu; Sasagawa, Katsuyoshi; Imai, Masao (Mitsui Toatsu Chemicals, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 01090169 A2 19890406 Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-244952 19870929.

AB  $\text{HSCH}_2\text{CH}_2\text{OCOCCHRCH}(\text{SH})\text{CO}_2\text{CH}_2\text{CH}_2\text{SH}$  (R = H, SH) are useful in the manuf. of polythiourethanes having high refractive index and light dispersion characteristics. Thus, 25.22 g thiomalic acid was refluxed with 27.56 g

2-mercaptoethanol in C<sub>6</sub>H<sub>6</sub> in the presence of p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>H to give 38.36 g thiomalic acid bis(2-mercaptoethyl ester) (I). Then, 18.1 g I was mixed with 18.8 g m-xylene diisocyanate and 0.01 g dibutyltin laurate and heated in a mold at 80-120.degree. for 8 h to give a transparent and colorless resin with refractive index 1.62 and Abbe no. 35.

IC ICM C07C149-20

ICS C09K003-00

ICA C08G059-40; C08G065-34; C09K015-12; C10M135-26

ICI C10N030-10

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 23

IT 123097-82-5P, Thiomalic acid bis(2-mercaptoethyl ester)

123173-76-2P, 2,3-Dimercaptosuccinic acid bis(2-mercaptoethyl ester)

RL: PREP (Preparation)

(prepn. and polymn. with diisocyanates)

IT 123097-82-5P, Thiomalic acid bis(2-mercaptoethyl ester)

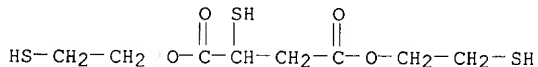
123173-76-2P, 2,3-Dimercaptosuccinic acid bis(2-mercaptoethyl ester)

RL: PREP (Preparation)

(prepn. and polymn. with diisocyanates)

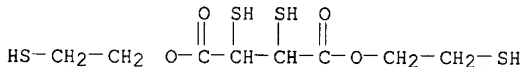
RN 123097-82-5 HCA

CN Butanedioic acid, mercapto-, bis(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



RN 123173-76-2 HCA

CN Butanedioic acid, 2,3-dimercapto-, bis(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



L38 ANSWER 4 OF 15 HCA COPYRIGHT 2003 ACS

102:96513 **Heat stabilizers** for halogenated resins. Bohen, Joseph Michael; Reifenberg, Gerald Harvey (Pennwalt Corp., USA). Eur. Pat. Appl. EP 124833 A1 **19841114**, 24 pp. DESIGNATED STATES: R; BE, DE, FR, GB, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1984-104741 19840427. PRIORITY: US 1983-489881 19830429.

AB Halogen-free **heat stabilizer** compns. for halogenated resins comprise (A) an aliph. mercaptan and (B) .gtoreq.1 S-contg. organotin compd., whereby .ltoreq.80% of the mercaptan can be replaced by an alkali or alk. earth metal salt of a mercaptan or mercapto acid and the A-B wt. ratio is (1-25):(1-20). Thus, PVC [9002-86-2] 100, paraffin wax 1.2, oxidized polyethylene wax 0.15, Ca stearate 0.6, CaCO<sub>3</sub> 2.0, TiO<sub>2</sub> 1.0, and 15:85 methyltin sesquisulfide + 2-mercaptoethyl stearate [27564-01-8] stabilizer 0.5 parts were mixed in a blender, masticated at 370.degree.F and rated visually for discoloration. A resin compn. contg. a binary stabilizer remained white after 15 min of processing, whereas a compn. contg. only 1 of the stabilizers was discolored after 3-12 min..

IC C08K005-37; C08K005-58; C08L027-06

CC 37-6 (Plastics Manufacture and Processing)

ST PVC **heat stabilizer** mercapto compd; tin mercaptide

**heat stabilizer** PVC; sulfide organotin **heat stabilizer**

IT **Heat stabilizers**  
(aliph. mercaptans and sulfur-contg. organotin compds., for halogenated resins)

IT Thiols, uses and miscellaneous  
RL: MOA (Modifier or additive use); USES (Uses)  
(aliph., **heat stabilizers**, contg. sulfur-contg. organotin compds., for halogenated resins)

IT Fatty acids, compounds  
RL: USES (Uses)  
(tallow, mercapto, tin salts, **heat stabilizers**, for halogen-contg. polymers)

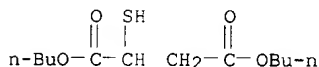
IT 9002-86-2  
RL: USES (Uses)  
(**heat stabilizers** for, aliph. mercaptans and sulfur-contg. organotin compds. as)

IT 112-55-0 1185-81-5 4253-22-9 7440-31-5D, mercaptoethyltallow fatty acid salt, alkyl derivs. **7529-08-0** 13269-74-4 22909-87-1 25103-09-7 25168-24-5 25852-70-4 26401-97-8 26636-01-1 26761-46-6 27564-01-8 29946-28-9 30374-01-7 30982-97-9 54849-38-6 59118-76-2 59118-93-3 59138-44-2 66368-81-8 68298-40-8 69128-10-5 95115-32-5 95115-33-6 95115-34-7 95115-35-8 95115-36-9 95115-37-0 95115-38-1  
RL: MOA (Modifier or additive use); USES (Uses)  
(**heat stabilizers**, for halogenated resins)

IT **7529-08-0**  
RL: MOA (Modifier or additive use); USES (Uses)  
(**heat stabilizers**, for halogenated resins)

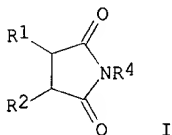
RN 7529-08-0 HCA

CN Butanedioic acid, mercapto-, dibutyl ester (9CI) (CA INDEX NAME)



L38 ANSWER 5 OF 15 HCA COPYRIGHT 2003 ACS  
101:212180 Stabilized poly(vinyl chloride) molding compositions. Upadek, Horst; Erwied, Werner; Wegemund, Bernd (Henkel K.-G.a.A., Fed. Rep. Ger.). Ger. Offen. DE 3247736 A1 **19840705**, 24 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1982-3247736 19821223.

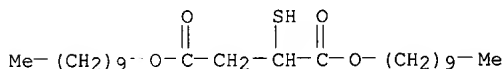
GI



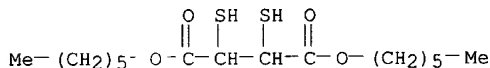
AB Thiols I and RO2CCHR1CHR2CO2R3 (R, R3, R4 = C5-22 alkyl; R1, R2 = H, SH) are useful as **heat stabilizers** for PVC [9002-86-2] molding compns. Thus, a mixt. of PVC 100, stearic acid 0.2, paraffin 0.2, pentaerythritol stearate 0.5, Zn stearate [557-05-1] 0.5, Ca stearate [1592-23-0] 1.0, zeolite NaA 1.0, and didecyl mercaptosuccinate [

58473-83-9] 0.5 part was processed at 170.degree. for 5 min and then heated at 180.degree.. The compn. was not discolored initially, was slightly discolored after 40 min, and was strongly discolored after 100 min.

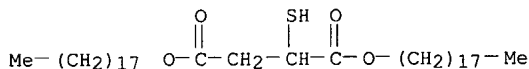
- IC C08L027-06; C08K005-10; C08K005-20; C08K005-37  
 CC 37-6 (Plastics Manufacture and Processing)  
 ST PVC **heat stabilizer** mercaptosuccinic deriv; succinate mercapto stabilizer PVC; succinimide mercapto alkyl stabilizer PVC; mercaptosuccinimide **heat stabilizer** PVC; mercaptosuccinate **heat stabilizer** PVC; thiol **heat stabilizer** PVC  
 IT Soaps  
 Thiols, uses and miscellaneous  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (**heat stabilizers**, for PVC)  
 IT **Heat stabilizers**  
 (mercaptosuccinic derivs., for PVC)  
 IT Zeolites, uses and miscellaneous  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (CaNaA, **heat stabilizers**, for PVC)  
 IT Zeolites, uses and miscellaneous  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (NaA, **heat stabilizers**, for PVC)  
 IT 9002-86-2  
 RL: USES (Uses)  
 (**heat stabilizers** for, mercaptosuccinic derivs. as)  
 IT 557-05-1 1592-23-0 6865-35-6 58473-83-9 93110-07-7 93110-08-8 93110-09-9  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (**heat stabilizers**, for PVC)  
 IT 58473-83-9 93110-07-7 93110-08-8  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (**heat stabilizers**, for PVC)  
 RN 58473-83-9 HCA  
 CN Butanedioic acid, mercapto-, didecyl ester (9CI) (CA INDEX NAME)



- RN 93110-07-7 HCA  
 CN Butanedioic acid, 2,3-dimercapto-, dihexyl ester (9CI) (CA INDEX NAME)

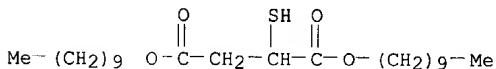


- RN 93110-08-8 HCA  
 CN Butanedioic acid, mercapto-, dioctadecyl ester (9CI) (CA INDEX NAME)



L38 ANSWER 6 OF 15 HCA COPYRIGHT 2003 ACS  
 101:212179 Stabilized poly(vinyl chloride) molding compositions. Upadek,

- Horst; Wegemund, Bernd; Erwied, Werner; Salz, Rainer (Henkel K.-G.a.A., Fed. Rep. Ger.). Ger. Offen. DE 3247737 A1 **19840705**, 21 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1982-3247737 19821223.
- AB Compds. RCOCH<sub>2</sub>SO<sub>3</sub>M (R = C1-18 alkyl, M = Na or K) are useful as **heat stabilizers** for PVC [9002-86-2] molding compns. Thus, a mixt. of PVC 100, Ca stearate [1592-23-0] 1.0, Zn stearate [557-05-1] 0.5, stearic acid 0.2, paraffin 0.2, pentaerythritol stearate 0.5, MeCOCH<sub>2</sub>SO<sub>3</sub>Na [16562-77-9] 0.5, and didecyl mercaptosuccinate [ **58473-83-9**] 0.5 part was processed at 170.degree. for 5 min and then heated at 180.degree.. The compn. was not discolored initially, was slightly discolored after 10 min, and was strongly discolored after 90 min.
- IC C08L027-06; C08K005-42
- CC **37-6** (Plastics Manufacture and Processing)
- ST PVC **heat stabilizer** oxoalkanesulfonate; sulfonate oxoalkane stabilizer PVC; calcium stearate stabilizer PVC; zinc stearate stabilizer PVC; stearate metal stabilizer PVC
- IT **Heat stabilizers**
- IT (alkali metal oxoalkanesulfonates, for PVC)
- IT Soaps
- RL: MOA (Modifier or additive use); USES (Uses) (**heat stabilizers**, for PVC)
- IT Zeolites, uses and miscellaneous
- RL: MOA (Modifier or additive use); USES (Uses) (NaA, **heat stabilizers**, for PVC)
- IT 9002-86-2
- RL: USES (Uses) (**heat stabilizers** for, alkali metal oxoalkanesulfonates as)
- IT 557-05-1 1592-23-0 16562-77-9 19327-26-5 58446-52-9 **58473-83-9** 78579-89-2
- RL: MOA (Modifier or additive use); USES (Uses) (**heat stabilizers**, for PVC)
- IT **58473-83-9**
- RL: MOA (Modifier or additive use); USES (Uses) (**heat stabilizers**, for PVC)
- RN 58473-83-9 HCA
- CN Butanedioic acid, mercapto-, didecyl ester (9CI) (CA INDEX NAME)



L38 ANSWER 7 OF 15 HCA COPYRIGHT 2003 ACS

100:7895 **Heat stabilizers** for vinyl chloride polymers.

Gay, Michel (Rhône-Poulenc Specialites Chimiques, Fr.). Eur. Pat. Appl. EP 90748 A1 **19831005**, 41 pp. DESIGNATED STATES: R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE. (French). CODEN: EPXXDW. APPLICATION: EP 1983-420050 19830321. PRIORITY: FR 1982-5700 19820330.

- AB The title stabilizers, giving colorless transparent compns, contain org. compds. of Zn and of Group IIA metals and thiomalate diesters. Thus, plasticized PVC [9002-86-2] contg. Zn 2-ethylhexanoate [136-53-8] 0.09, Ba p-tert-butylbenzoate [10196-68-6] 0.5, and neopentyl glycol thiomalate (3:2) [88210-81-5] 0.80 phr when heated at 180.degree. had Gardner color 0 and 3 after 55 and 133 min, compared with 4 and black after 55 and 98 min without the thiomalate.

IC C08L027-06; C08K005-00

CC **37-6** (Plastics Manufacture and Processing)

ST **heat stabilizer** PVC nonstaining; zinc carboxylate **heat stabilizer**; ethylhexanoate zinc **heat stabilizer**; barium carboxylate **heat stabilizer**; butylbenzoate barium **heat stabilizer**; thiomalate ester **heat stabilizer**; neopentyl glycol thiomalate stabilizer

IT Alkaline earth compounds  
RL: USES (Uses)  
(carboxylates, **heat stabilizers**, for PVC, nondiscoloring)

IT **Heat stabilizers**  
(zinc-barium carboxylates and thiomalate esters, for PVC, nondiscoloring)

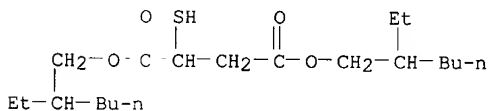
IT 136-53-8 557-04-0 557-05-1 1592-23-0 4980-54-5 6865-35-6  
10196-68-6 52509-84-9 **65291-46-5** 77194-15-1 88210-81-5  
88210-82-6 88210-83-7 88228-75-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(**heat stabilizer**, for PVC, nondiscoloring)

IT 9002-86-2  
RL: USES (Uses)  
(**heat stabilizers** for, metal carboxylates and thiomalate esters as nondiscoloring)

IT **65291-46-5**  
RL: MOA (Modifier or additive use); USES (Uses)  
(**heat stabilizer**, for PVC, nondiscoloring)

RN 65291-46-5 HCA

CN Butanedioic acid, mercapto-, bis(2-ethylhexyl) ester (9CI) (CA INDEX NAME)



L38 ANSWER 8 OF 15 HCA COPYRIGHT 2003 ACS

99:6547 Room temperature-crosslinking unsaturated polyester resins.  
Gallagher, Ronald B.; Novits, Michael F. (Pennwalt Corp. , USA). U.S. US 4380605 A **19830419**, 7 pp. (English). CODEN: USXXAM.  
APPLICATION: US 1981-304136 19810921.

AB Crosslinking of unsatd. polyesters at room temp. in the presence of a peroxyester initiator is accelerated by an org. mercapto compd. and a metal salt. Thus, 100 g Laminac 4123 [53529-34-3] polyester and 0.3 g mercaptobenzothiazole [149-30-4] were mixed, and 0.0003 g CuCl2 was added followed by 1.0 g tert-butylperoxybenzoate. Gel time was 16 min and cure time was 34 min. Without CuCl2, the gel time was 240 min, and with no accelerator it was 200 h.

IC C08G063-76

NCL 525014000

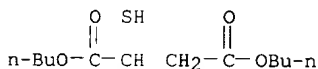
CC **37-6** (Plastics Manufacture and Processing)

IT 96-46-8 142-71-2 2935-90-2 4162-43-0 **7529-08-0**  
17356-08-0 30093-91-5 86100-20-1  
RL: CAT (Catalyst use); USES (Uses)  
(crosslinking catalyst contg., for unsatd. polyester)

IT **7529-08-0**  
RL: CAT (Catalyst use); USES (Uses)  
(crosslinking catalyst contg., for unsatd. polyester)

RN 7529-08-0 HCA

CN Butanedioic acid, mercapto-, dibutyl ester (9CI) (CA INDEX NAME)



L38 ANSWER 9 OF 15 HCA COPYRIGHT 2003 ACS

98:17449 New room-temperature cure system for RP. Kamath, V. R.; Novits, M. F.; Gallagher, R. B. (Lucidol Div., Pennwalt Corp., Buffalo, NY, USA). Modern Plastics, 59(9), 90, 92, 94 (English) 1982. CODEN: MOPLAY. ISSN: 0026-8275.

AB Initiator-promoter systems for crosslinking unsatd. polyesters are based on peroxyesters, promoted by mercaptan-metal salt mixts. The systems are adaptable to shelf life and cure times of com. processes, and they have good cost-performance data when compared to conventional cure systems.

CC 37-6 (Plastics Manufacture and Processing)

IT 107-71-1 109-13-7 112-55-0 149-30-4 614-45-9 2372-21-6  
2885-00-9 2935-90-2 3006-82-4 7447-39-4, uses and miscellaneous  
7529-08-0 7705-08-0, uses and miscellaneous 13052-09-0  
30093-91-5

RL: USES (Uses)

(catalyst compns. contg., for crosslinking polyesters)

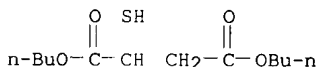
IT 7529-08-0

RL: USES (Uses)

(catalyst compns. contg., for crosslinking polyesters)

RN 7529-08-0 HCA

CN Butanedioic acid, mercapto-, dibutyl ester (9CI) (CA INDEX NAME)



L38 ANSWER 10 OF 15 HCA COPYRIGHT 2003 ACS

88:51589 Organotin mercapto dicarboxylic acid esters and compositions. Mack, Gerry P. (USA). U.S. US 4058543 19771115, 20 pp. (English). CODEN: USXXAM. APPLICATION: US 1976-646310 19760102.

AB The esters are useful for providing enhanced resistance to early and long-term discoloration in PVC [9002-86-2] resins, without imparting an obnoxious mercaptide odor to the compn. Thus, 2 mol aq. 10% NaOH was slowly added to a mixt. of 2 mol di-Bu thiomalate [7529-08-0] and 1 mol dimethyltin dichloride [753-73-1], and the soln. was heated 0.5 h at 60.degree. to give tetra-Bu [(dimethylstannylene)dithio]disuccinate (I). A mixt. of 1 mol I and 1 mol ethylene glycol was heated 3 h at 120-5.degree. to yield the dimethyltin thiomalate ester. Heating PVC contg. 2 phr ester 20 min. at 205.degree. resulted in a yellow color, compared to a light orange-brown color for similar resins contg. dimethyltin bis(isooctyl thioglycolate) or dimethyltin bis(di-Bu thiomalate) stabilizer. During milling, the controls emitted a strong mercapto ester odor, but no S odor was obsd. using the product ester.

IC C08K005-58

NCL 260045750S

CC 36-6 (Plastics Manufacture and Processing)

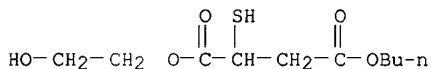
Section cross-reference(s): 29

ST PVC heat stabilizer; tin compd heat

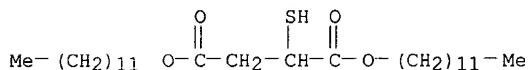
stabilizer; thiomalate tin deriv stabilizer

IT Heat stabilizers

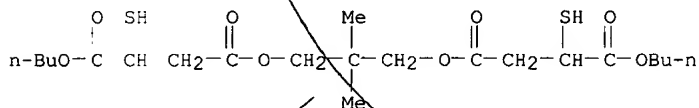
(tin thiomalate derivs., for PVC)  
 IT 9002-86-2  
 RL: USES (Uses)  
 (heat stabilizers for, tin thiomalate derivs. as)  
 IT 65291-36-3D, reaction products with dioctyltin oxide  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for PVC)  
 IT 105-08-8DP, esters with thiomalates 111-46-6DP, esters with thiomalates  
 63979-81-7DP, reaction products with alkylene glycols  
 65291-35-2P 65291-37-4P 65291-42-1P 65291-43-2DP,  
 reaction products with alkylene glycols 65291-44-3DP, reaction products  
 with alkylene glycols 65291-45-4DP, reaction products with  
 alkylene glycols 65291-46-5DP, reaction products with alkylene  
 glycols 65291-47-6DP, reaction products with alkylene glycols  
 65291-48-7DP, reaction products with alkylene glycols  
 RL: PREP (Preparation)  
 (prepn. of)  
 IT 7529-08-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with dialkyltin chlorides or oxides)  
 IT 1795-56-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with dimethyl [(dibutylstannyl)thio]succinate)  
 IT 65291-36-3D, reaction products with dioctyltin oxide  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for PVC)  
 RN 65291-36-3 HCA  
 CN Butanedioic acid, mercapto-, 4-butyl 1-(2-hydroxyethyl) ester (9CI) (CA  
 INDEX NAME)



IT 63979-81-7DP, reaction products with alkylene glycols  
 65291-42-1P 65291-43-2DP, reaction products with  
 alkylene glycols 65291-45-4DP, reaction products with alkylene  
 glycols 65291-46-5DP, reaction products with alkylene glycols  
 65291-47-6DP, reaction products with alkylene glycols  
 RL: PREP (Preparation)  
 (prepn. of)  
 RN 63979-81-7 HCA  
 CN Butanedioic acid, mercapto-, didodecyl ester (9CI) (CA INDEX NAME)

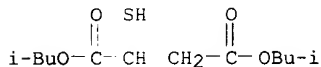


RN 65291-42-1 HCA  
 CN Butanedioic acid, mercapto-, 4,4'-(2,2-dimethyl-1,3-propanediyl)  
 1,1'-dibutyl ester (9CI) (CA INDEX NAME)



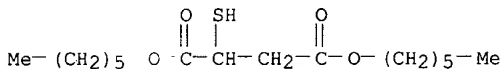
RN 65291-43-2 HCA

CN Butanedioic acid, mercapto-, bis(2-methylpropyl) ester (9CI) (CA INDEX NAME)



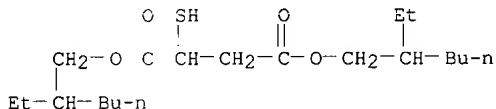
RN 65291-45-4 HCA

CN Butanedioic acid, mercapto-, dihexyl ester (9CI) (CA INDEX NAME)



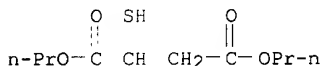
RN 65291-46-5 HCA

CN Butanedioic acid, mercapto-, bis(2-ethylhexyl) ester (9CI) (CA INDEX NAME)



RN 65291-47-6 HCA

CN Butanedioic acid, mercapto-, dipropyl ester (9CI) (CA INDEX NAME)

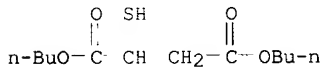


IT 7529-08-0

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with dialkyltin chlorides or oxides)

RN 7529-08-0 HCA

CN Butanedioic acid, mercapto-, dibutyl ester (9CI) (CA INDEX NAME)

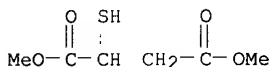


IT 1795-56-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with dimethyl [(dibutylstannyl)thio]succinate)

RN 1795-56-8 HCA

CN Butanedioic acid, mercapto-, dimethyl ester (9CI) (CA INDEX NAME)



## L38 ANSWER 11 OF 15 HCA COPYRIGHT 2003 ACS

86:56344 Hardening of epoxy resins. Senda, Hisakazu; Saeki, Shuji (Daichi Kogyo Seiyaku Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 51125499 19761101 Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1975-50299 19750424.

AB Polyamines contg. di-Me tartarate (I) [608-68-4] or a similar compd. and optionally a polyamide were used as crosslinking agents to prep. epoxy resins having good weather- and water resistance. Thus, 100 parts Epikote 828 [25068-38-6] was mixed with 8 parts diethylenetriamine [111-40-0] and 3 parts I and hardened at 20.degree. for 2 h and 115.degree. for 30 min to prep. a resin having heat deformation temp. 115.degree., compared with 95.degree. for a resin hardened in the absence of I.

IC C08G059-58

CC 36-6 (Plastics Manufacture and Processing)

IT 87-91-2 608-68-4 3333-46-8 17660-58-1

RL: MOA (Modifier or additive use); USES (Uses)

(crosslinking agents, contg. polyamines, for epoxy resins)

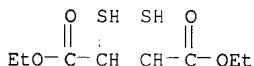
IT 17660-58-1

RL: MOA (Modifier or additive use); USES (Uses)

(crosslinking agents, contg. polyamines, for epoxy resins)

RN 17660-58-1 HCA

CN Butanedioic acid, 2,3-dimercapto-, diethyl ester (9CI) (CA INDEX NAME)



## L38 ANSWER 12 OF 15 HCA COPYRIGHT 2003 ACS

79:54841 Perfluoroalkyl group-containing mercaptans and sulfides. Falk, Robert A.; Kleiner, Eduard K. (Ciba-Geigy A.-G.). Ger. Offen. DE 2253051 19730524, 71 pp. (German). CODEN: GWXXEX. APPLICATION: DE 1972-2253051 19721028.

AB Reaction of a mercaptan contg. .geq.1 SH groups with a fluoroalkyl fumarate gave the title sulfides and reaction of thiomalonic acid [70-49-5] with 1,1,2,2-tetrahydroperfluorodecyl acetate [37858-04-1] gave bis(1,1,2,2-tetrahydroperfluorodecyl) mercaptosuccinate [41395-79-3]. The title compds. (24 used) were useful as oil and water repellents for cotton and Dacron fabrics. Thus, MeCCl3 contg. bis(1,1,2,2-tetrahydroperfluorodecyl) fumarate [33072-51-4], butanedithiol [1191-08-8], and Et3N was heated 24 hr at 60.deg. to give 75% tetrakis(1,1,2,2-tetrahydroperfluorodecyl) (tetramethylenedisthio)disuccinate (I) [41395-81-7], m. 60-1.deg.. Dacron fabric treated with a 3% soln. of I (contg. 60.68% F) in MeCCl3 exhibited an oil repellency rating of 6 [on a scale of 1 (min.)-8(max.)] in AATCC test 118-1966T and a water repellency rating of 0 [on a scale of 0(min.)-100(max.)] in AATCC test 22-1966 with 0.2% F on the fabric.

IC C07C; D06M

CC 39-10 (Textiles)

Section cross-reference(s): 23, 25

IT 39466-57-4 39466-58-5 41395-79-3 41395-81-7 42941-36-6  
42941-37-7 42941-38-8 42941-39-9 42941-40-2 42941-41-3  
42941-42-4 42941-43-5 43030-37-1 43030-38-2 43193-00-6

RL: USES (Uses)

(soil repellents, for textiles)

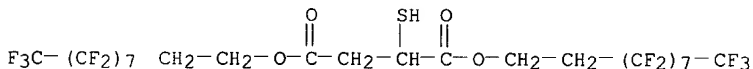
IT 41395-79-3

RL: USES (Uses)

(soil repellents, for textiles)

RN 41395-79-3 HCA

CN Butanedioic acid, mercapto-, bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl) ester (9CI) (CA INDEX NAME)



L38 ANSWER 13 OF 15 HCA COPYRIGHT 2003 ACS

79:54840 Free radical polymerization using perfluoroalkyl group-containing mercaptans as chain-transfer agents. Falk, Robert A.; Kleiner, Eduard (Ciba-Geigy A.-G.). Ger. Offen. DE 2253004 19730524, 74 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1972-2253004 19721028.

AB Polymers with low surface tension, esp. useful as antisoiling finishes for textiles, consisted of (RfACHR3CR1R2S)mB[S(M)q]nH or (RfACHR3CR1R2S)(M)qH, R1, R2, R3 = H, Me, RfA, RfACH2 with .geq.1 of R1, R2, R3 = RfA or RfACH2; Rf = perfluoroalkyl; A = a group of the type (CH2)kCO2, k = 0-10; B = combining atom or group, e. g., C; m = 0-10; n = 1-9; M = monomeric group; q = >1. The polymers were prepd. by polymg. the monomer in the presence of a perfluorogroup-contg. mercaptan chain-transfer agent, such as RfACHR3CR1R2SH. Thus, 10 parts 2:10 mercaptan chain-transfer agent [C8F17CH2CH2O2CH(SH)CH2CO2CH2CH2C8F17] [41395-79-3] - Me methacrylate (I) [80-62-6] mixt., 0.5% azobisisobutyronitrile (on wt. I) and 20 parts EtOAc were polymd. for 16 hr at 70.deg. to give a product contg. 0.85% F, no.-av. mol. wt. 6815, and crit. surface tension 14.3 dynes/cm compared with 39.0 dynes/cm for a sample similarly prepd. but using no mercaptan chain-transfer agent.

IC C08F

CC 39-10 (Textiles)

L38 ~~ANSWER 14 OF 15~~ HCA COPYRIGHT 2003 ACS

64:94282 Original Reference No. 64:17809f-h Stabilizing poly(vinyl halide) resins with a terpene and a sulfur-containing compound. Lindsey, William B. (E. I. du Pont de Nemours & Co.). US 3242133 19660322, 4 pp. (Unavailable). APPLICATION: US 19590708.

AB Poly(vinyl halides) can be **heat stabilized** by the use of a combination of an olefinieally unsatd. terpene and O or a hydrocarbon or halogen deriv. of an olefinically unsatd. terpene and .gtoreq.1 compd. of the structure RSH or RSSR' in which R and R1 are alkyl, hydroxyalkyl, thioalkyl, carboalkoxyalkyl, haloalkyl, arylalkyl, arylalkaryl, haloaryl, thioaryl, thioalkaryl, carboalkoxaryl, carboxyaryl, cycloalkyl, furyl, furfuryl, and thienyl groups. For example a mixt. of poly(vinyl chloride) resin 90, Lubridn V-3 2,.beta.-pinene 5, and isooctyl thioglycolate 3 parts is extruded at 195.degree. through a conventional 1-in.-diam. extruder equipped with a 6-in. flat die and with a 0.007-in. opening and operating with a 50-100 mesh screen packs for 4 hrs. to produce a clear, essentially colorless, bubble-free film. In a control expt., a mixt. of 98 parts of the same poly(vinyl chloride) resin and 2 parts Lubiricin V-3 is fed into the same extruder at 195.degree.. It formed a bubble-contg. black mass in the heated zone of the extruder and plugged it.

NCL 45.7

CC 48 (Plastics Technology)

IT Gold chloride

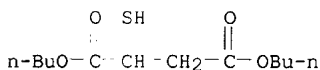
(vinyl alc. polymer **heat stabilization** by 2-benzimidazolethiol and)

IT 7772-99-8, Tin chloride, SnCl2

(vinyl alc. polymer **heat stabilization** by 2-benzimidazolethiol and)

IT 91-60-1, 2-Naphthalenethiol 100-53-8, .alpha.-Toluenethiol 496-74-2,

Toluene-3,4-dithiol 1569-69-3, Cyclohexanethiol 2396-68-1,  
 Benzenethiol, p-tert-butyl- 7072-70-0, Benzoic acid, o-mercapto-, butyl  
 ester 7529-07-9, Propionic acid, 2-mercapto-, butyl ester  
 7529-08-0, Succinic acid, mercapto-, dibutyl ester 25103-09-7,  
 Isooctyl alcohol, mercaptoacetate 25103-58-6, tert-Dodecyl mercaptan  
 28606-03-3, 2-Pinenethiol 30523-08-1, Propionic acid, 2-mercapto-,  
 isooctyl ester  
 (vinyl halide resin stabilization by terpenes and)  
 IT 7529-08-0, Succinic acid, mercapto-, dibutyl ester  
 (vinyl halide resin stabilization by terpenes and)  
 RN 7529-08-0 HCA  
 CN Butanedioic acid, mercapto-, dibutyl ester (9CI) (CA INDEX NAME)



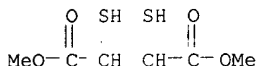
L38 ANSWER 15 OF 15 HCA COPYRIGHT 2003 ACS

58:33423 Original Reference No. 58:5693f-h,5694a-b Sulfur-containing  
 dicarboxylic acids and derivatives. (F. Hoffmann-La Roche & Co., A.-G.).  
 GB 9008986 19621024, 5 pp (Unavailable). PRIORITY: CH  
 19600226.

AB Racemic and optically active compds. were prepd. having the general  
 formula  $[\text{R}'\text{O}_2\text{CCH}(\text{SR})]_2$ , where R' is H or alkyl and R is H, alkyl or acyl,  
 or RR is methylene. Thus, 380 g.  $\text{HO}_2\text{CC.tplbond.CCO}_2\text{K}$  was stirred over 0.5  
 hr., with cooling, into 500 ml. 5N HCl in EtOAc. After 1 hr., 380 g. AcSH  
 was added dropwise over 2.5-3 hrs. at 35.degree., then stirred for 15 hrs.  
 at 20.degree., and partitioned between H<sub>2</sub>O and EtOAc. The EtOAc soln. was  
 concd. to 1 l. to ppt. 260 g. meso-2,3-bis(acetylthio)succinic acid. This  
 was filtered off and recrystd. from EtOAc. The filtrate was concd., petr.  
 ether added, and the ppt. boiled with Bu<sub>2</sub>O to give 75 g.  
 dl-2,3-bis(acetylthio)succinic acid (I), m. 150-2.degree. (EtOAc-petr.  
 ether), di-Me ester m. 70-1.degree.. I (19 g.) was dissolved in 190 ml.  
 3N NaOH, the soln. cooled to 0.degree., satd. with NaCl, made acid to  
 Congo red with HCl, extd. with Et<sub>2</sub>O, and evapd. to yield 10.5 g.  
 dl-2,3-dimercaptosuccinic acid (II), m. 126-7.degree. (iso-Pr<sub>2</sub>O), di-Me  
 ester b0.01 80.degree.. II (4.5 g.) was dissolved in 250 ml. MeOH and the  
 soln. treated with 20 g. brucine dissolved in 250 ml. MeOH. The brucine  
 salt of II (III) (23 g., m. 156-8.degree.) sepd. III was treated for 2  
 hrs. with N HCl and 9.4 g. solid (IV) was obtained as well as an acidic  
 extract (V). IV was recrystd. once from MeOH and yielded a brucine salt,  
 m. 275-80.degree.; the latter was dissolved in H<sub>2</sub>O, acidified with HCl,  
 satd. with NaCl, extd. with Et<sub>2</sub>O, the Et<sub>2</sub>O evapd., and the residue  
 recrystd. twice from EtOAc-petr. ether, to yield 100 mg.  
 (+)-2,3-dimercaptosuccinic acid, m. 125-6.degree.,  $[\alpha]_D^{25}$   
 128.degree. (c 1, Et<sub>2</sub>O). V was satd. with NaCl, the soln. extd. 3 times  
 with Et<sub>2</sub>O the Et<sub>2</sub>O evapd., and the residue recrystd. from C<sub>6</sub>H<sub>6</sub>, and then  
 several times front EtOAc-petr. ether to yield (-)-2,3-dimercaptosuccinic  
 acid, m. 125-6.degree.,  $[\alpha]_D^{25}$  -130.degree. (c 1, Et<sub>2</sub>O). Similarly,  
 I was treated with brucine in MeOH to give the salt, m. 130-1.degree.,  
 $[\alpha]_D^{25}$  -67.degree. (c 0.7, HCONMe<sub>2</sub>). The latter was hydrolyzed  
 (NaOH) to give (-)-2,3-dimercaptosuccinic acid. Also prepd. were:  
 dl-2,3-bis(acetylthio)succinic acid anhydride, m. 105-7.degree., (C<sub>6</sub>H<sub>6</sub>);  
 di-Me dl-2,3-bis(methylthio)succinate, m. 72.degree. (iso-Pr<sub>2</sub>O);  
 2,2-dimethyl-1,3-dithiolane-trans-4,5-dicarboxylic acid, m. 156-7.degree.  
 (Et<sub>2</sub>O-C<sub>6</sub>H<sub>6</sub>); 1,4-dithiaspiro[4,5]decane-trans-2,3-dicarboxylic acid, m.  
 184-5.degree. (Et<sub>2</sub>O-petr. ether); 2-(p-chlorophenyl)-1,3-dithiolane-trans-  
 4,5-dicarboxylic acid, m. 206-8.degree. (decompn.) (Et<sub>2</sub>O-petr. ether).

These compds. were used as intermediates for the production of metal complexes for pharmaceuticals. They were also used directly as plant-protecting agents owing to their antifungal properties. They could be used as dusts (e.g., 1-10% in talc) and as sprays.

CC 38 (Heterocyclic Compounds (More Than One Hetero Atom))  
 IT 17660-57-0, Succinic acid, 2,3-dimercapto-, dimethyl ester  
 37129-18-3, Succinic acid, 2,3-bis(methylthio)-, dimethyl ester  
 90927-64-3, Succinic acid, 2,3-dimercapto-, dimethyl ester, diacetate  
 (prepn. of)  
 IT 17660-57-0, Succinic acid, 2,3-dimercapto-, dimethyl ester  
 (prepn. of)  
 RN 17660-57-0 HCA  
 CN Butanedioic acid, 2,3-dimercapto-, dimethyl ester (9CI) (CA INDEX NAME)



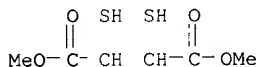
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L39 ANSWER 1 OF 155 HCA COPYRIGHT 2003 ACS

132:245323 Crystal structure of the nitridorhenium(V) derivative complex [ReN{CMe2PPhMe2}(DMSMe2)2]. Seifert, S.; Leibnitz, P.; Spies, H. (Bundesanstalt für Materialforschung und -prüfung, Berlin, Germany). Wissenschaftlich-Technische Berichte - Forschungszentrum Rossendorf, FZR-270, 154-155 (English) 1999. CODEN: WBFRFQ. ISSN: 1437-322X.

AB Reaction of ReNCl2(PMe2Ph)3 with 2,3-dimercaptosuccinic acid di-Me ester (DMSMe2) in Me Et ketone forms phosphoniomethylimido complex [ReN{CMe2PMe2Ph}{DMSMe2}2] which was characterized by x-ray crystallog. A phosphine mol. is bound to the central C atom of the added solvent mol. and not, as expected, directly to the Re atom. The resulting Re:N-C-P chain has an angle N1-Cl3-P1 of 99.5.degree.. The Re-N bond length of 1.697 Å is in the range of a double bonded N atom. A mechanism is proposed which involves reductive attack of a free phosphine mol. on a solvent mol. to form a carbonium ion and phosphine oxide. Addn. of the resulting electrophilic agent onto the nitrido atom and nucleophilic attack of a second phosphine results in product.

IT 17660-57-0, Dimethyl 2,3-dimercaptosuccinate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction with rhenium nitrido phosphine complex and Me Et ketone)  
 RN 17660-57-0 HCA  
 CN Butanedioic acid, 2,3-dimercapto-, dimethyl ester (9CI) (CA INDEX NAME)



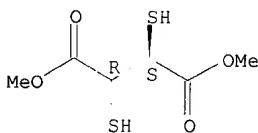
L39 ANSWER 10 OF 155 HCA COPYRIGHT 2003 ACS

127:315631 Arsenic-induced changes in certain neurotransmitter levels and their recoveries following chelation in rat whole brain. Tripathi, Neelima; Kannan, G. M.; Pant, B. P.; Jaiswal, D. K.; Malhotra, P. R.; Flora, S. J. S. (Division of Pharmacology and Toxicology, Defence Research and Development Establishment, Gwalior, 474002, India). Toxicology Letters, 92(3), 201-208 (English) 1997. CODEN: TOLED5. ISSN:

0378-4274. Publisher: Elsevier.

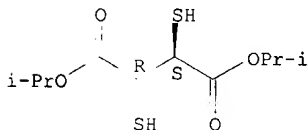
- AB Arsenic as sodium arsenite (100 ppm in drinking water) was administered to male rats for 16 wk. Animals were then treated either with meso-2,3-dimercaptosuccinic acid (DMSA), sodium 2,3-dimercaptopropionate 1-sulfonate (DMPS), di-Me DMSA (DmDMSA), or diisopropyl DMSA (DiPDMSA) twice daily (50 mg/kg) i.p. for 5 days. After 5 days of rest period, the animals were again given a second course of chelation therapy. The animals were sacrificed subsequently for the detn. of whole brain biogenic amines levels, acetylcholinesterase (AChE), monoamine oxidase (MAO) and .vdelta.-aminolevulinic acid dehydratase (ALAD) activities. A no. of biochem. parameters and arsenic concns. in some tissues were also detd. The results suggest a significant increase in brain arsenic concn. accompanied by alterations in neurotransmitters levels following As(III) exposure. Although chelation treatment was effective in reducing As burden, the altered biochem. variables responded less favorably to chelation therapy. The DMSA-diester, particularly DiPDMSA, produced a more pronounced increase in brain arsenic burden, as well as alterations in a few neurotransmitters. It can be concluded that the lipophilic character of As antidotes may lead to unfavorable results following i.p. administration.
- IT 27887-85-0, Dimethyl meso-2,3-dimercaptosuccinic acid  
118311-05-0, Diisopropyl meso-2,3-dimercaptosuccinic acid  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(arsenic-induced changes in certain neurotransmitter levels and their recoveries following chelation in rat whole brain)
- RN 27887-85-0 HCA
- CN Butanedioic acid, 2,3-dimercapto-, dimethyl ester, (2R,3S)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



- RN 118311-05-0 HCA
- CN Butanedioic acid, 2,3-dimercapto-, bis(1-methylethyl) ester, (R\*,S\*)-(9CI) (CA INDEX NAME)

Relative stereochemistry.

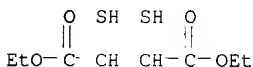


L39 ANSWER 20 OF 155 HCA COPYRIGHT 2003 ACS

125:74600 Preparation, characterization, and enzymic hydrolysis of Re/Tc complexes with dimercaptocarboxylic acids and ethyl esters. Seifert, S.; Syhre, R.; Hoepping, A.; Klostermann, K.; Spies, H.; Johannsen, B. (Inst. Bioinorg. Radiopharm. Chem., Res. Cent. Rossendorf Inc., Dresden, D-01314,

Germany). Forschungszentrum Rossendorf e.V., [Bericht] FZR, FZR-122, 91-97 (English) 1996. CODEN: FRBFUE.

- AB The influence of the no. and position of ester and free COOH groups in the ligands and the structure of ligand mols. on enzymic hydrolysis of square-pyramidal oxo complexes of Re(V) and Tc(V) with dithiolates was investigated. The ligands 2,3-dimercaptopropionic acid (DMPA), Et 2,3-dimercaptopropionate (DMPEt), and 1,1-dicarboethoxy-2,2-dithioethene (CETE) were studied. Complexes with these ligands and mixed complexes with these ligands and dimercaptosuccinic acid or its di-Et ester were prepd. and the hydrolysis behavior in solns. contg. pig liver esterase, rat plasma, or human plasma was studied in vitro and in vivo.
- IT 17660-58-1, Dimercaptosuccinic acid diethyl ester  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (for prepn. technetium complexes with dimercaptocarboxylic acids and -carboxylates)
- RN 17660-58-1 HCA
- CN Butanedioic acid, 2,3-dimercapto-, diethyl ester (9CI) (CA INDEX NAME)

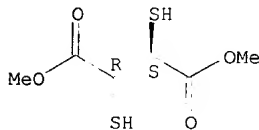


L39 ANSWER 30 OF 155 HCA COPYRIGHT 2003 ACS

123:46628 Different rates of enzymatic cleavage of the three stereoisomers of [ReO(DMS diester)2]- complexes. Seifert, S.; Syhre, R. (Germany). Forschungszent. Rossendorf, [Ber.] FZR, FZR-73, Institute of Bioinorganic and Radiopharmaceutical Chemistry, Annual Report, 1994, 42-5 (English) 1995. CODEN: FRBFUE.

- AB [ReO(L)2]- (H2L = di-Me and di-Et and diisobutyl esters of meso-dimercaptosuccinic acid) were prepd. by the reaction of the diester with Bu4N[ReOCl4]. The reaction mixts. each contain mixts. of the three isomers (syn-exo, syn-endo, and anti) which were identified by proton NMR and, in the case of the di-Me and di-Et esters, sepd. by HPLC. The rates of enzymic hydrolysis by pig liver esterase were studied, and the syn-endo form was found to hydrolyze at a significantly faster rate than the other two isomers.
- IT 27887-85-0, Dimethyl meso-2,3-dimercaptosuccinate  
 101925-77-3 118908-62-6, Diisobutyl meso-2,3-dimercaptosuccinate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (for prepn. of rhenium oxo dimercaptosuccinato diester complex stereoisomers)
- RN 27887-85-0 HCA
- CN Butanedioic acid, 2,3-dimercapto-, dimethyl ester, (2R,3S)-rel- (9CI) (CA INDEX NAME)

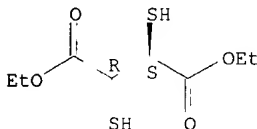
Relative stereochemistry.



- RN 101925-77-3 HCA
- CN Butanedioic acid, 2,3-dimercapto-, diethyl ester, (2R,3S)-rel- (9CI) (CA INDEX NAME)

INDEX NAME)

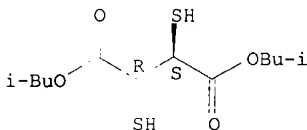
Relative stereochemistry.



RN 118908-62-6 HCA

CN Butanedioic acid, 2,3-dimercapto-, bis(2-methylpropyl) ester, (R\*,S\*)-(9CI) (CA INDEX NAME)

Relative stereochemistry.

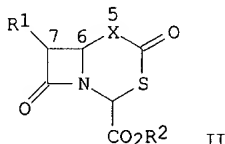
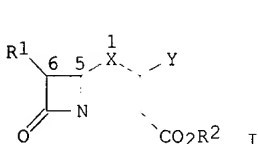


L39 ANSWER 40 OF 155 HCA COPYRIGHT 2003 ACS

120:217089 Process for preparing beta-lactam derivatives (carbapenems) and azathiabicycloalkanes as synthetic intermediates thereof. Horikawa, Hiroshi; Kondo, Kazuhiko; Iwasaki, Tameo (Tanabe Seiyaku Co., Ltd., Japan). Eur. Pat. Appl. EP 559533 A1 **19930908**, 16 pp.

DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1993-400506 19930226. PRIORITY: JP 1992-99023 19920306.

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AB .beta.-Lactams I [R1 = (un)protected hydroxyalkyl or amino; R2 = H, ester residue; X = CH2, alkylidene, S, ACH2; A = S, O, CH2; Y = OW, SR4; W = residue of active ester; R4 = org. group] and salts are prepd. by treating 1-aza-3-thiabicycloalkanes II with a base and a desulfurizing agent, followed by reaction with an active esterifying agent and possibly with a mercaptan R4SH. Thus, (3S,4S)-3-[(R)-1-tert-butyl dimethylsilyloxyethyl]-4-[(1R)-1-[2,2-bis(ethoxycarbonyl)ethylthiocarbonyl]ethyl]-1-[1-hydroxy-1-(pivaloyloxymethyloxycarbonyl)methyl]-2-azetidinone (prepn. given) was treated with SOCl2 and pyridine in THF at -40 to -50.degree. and the resultant 1-[1-chloro-1-(pivaloyloxymethyloxycarbonyl)methyl] deriv. was

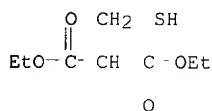
cyclized by Et<sub>3</sub>N in DMF at -20 to 0.degree. to give (5R,6S,7R)-II [R<sub>1</sub> = (R)-Me<sub>3</sub>CSiMe<sub>2</sub>OCHMe, R<sub>2</sub> = CH<sub>2</sub>OCOCMe<sub>3</sub>, X = .beta.-CHMe]. Desulfurization of this with KO<sub>2</sub>Me<sub>3</sub> and PPh<sub>3</sub> in PhMe at -40 to -20.degree. and esterification by quenching in a soln. of ClP(O)(OPh)<sub>2</sub> in MeCN gave (1R,5S,6S)-I [R<sub>1</sub> = (R)-Me<sub>3</sub>CSiMe<sub>2</sub>OCHMe, R<sub>2</sub> = CH<sub>2</sub>OCOCMe<sub>3</sub>, X = .beta.-CHMe] [III; Y = OP(O)(OPh)<sub>2</sub>]. Treatment of this with (4S)-4-mercaptopyrrolidine-2-thione and (iso-Pr)<sub>2</sub>NEt in MeCN gave III [Y = (4R)-pyrrolidin-2-thion-4-ylthio]. A subset of I [i.e., R<sub>1</sub> = MeCH(OR<sub>6</sub>); R<sub>2</sub> as given; X = CHMe; Y = 1-R<sub>5</sub>-2-thioxopyrrolidinylthio; R<sub>5</sub> = H, alkyl, alkoxyalkyl, dialkylaminoalkyl; R<sub>6</sub> = H, protective group] are novel and show better antibacterial activity, stability to dehydropeptidase 1, oral absorbability, and toxicity in comparison to known analogs where Y is a 2-oxopyrrolidin-4-ylthio group.

IT 153492-39-8P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and thioesterification in prepn. of carbapenems)

RN 153492-39-8 HCA

CN Propanedioic acid, (mercaptomethyl)-, diethyl ester (9CI) (CA INDEX NAME)



L39 ANSWER 50 OF 155 HCA COPYRIGHT 2003 ACS

117:194853 A proposal of new prognostic criteria for lubricity of oils and nonoils lubricating liquids. Tokarzewski, L.; Borek, J. (Inst. Chem., Silesian Univ., Katowice, Pol.). Rivista Italiana delle Sostanze Grasse, 69(4), 219 (English) 1992. CODEN: RISGAD. ISSN: 0035-6808.

AB A combination of high mol. polarizability and small wetting angles predicts the lubricity (welding load) of lubricants, base oils, and individual compds., e.g., xylene, PhNO<sub>2</sub>, ethylene glycol, etc.

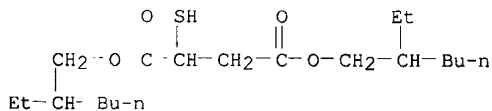
IT 65291-46-5

RL: USES (Uses)

(lubricity of, prediction of, polarizability and wetting angle in)

RN 65291-46-5 HCA

CN Butanedioic acid, mercapto-, bis(2-ethylhexyl) ester (9CI) (CA INDEX NAME)



L39 ANSWER 60 OF 155 HCA COPYRIGHT 2003 ACS

114:116515 The mobilization of intracellular cadmium by alkoxyethyl esters of meso-2,3-dimercaptosuccinic acid. Jones, Mark M.; Singh, Pramod K.; Gale, Glen R.; Atkins, Loretta M.; Smith, Alayne B. (Cent. Mol. Toxicol., Vanderbilt Univ., Nashville, TN, 37235, USA). Toxicology and Applied Pharmacology, 106(3), 529-35 (English) 1990. CODEN: TXAPA9. ISSN: 0041-008X.

AB The Cd-mobilizing properties of 2 newly synthesized esters of meso-2,3-dimercaptosuccinic acid in mice have been examd. They are bis(2'-methoxyethyl) meso-2,3-dimercaptosuccinate (MEDMS) and

bis(2'-ethoxyethyl) meso-2,3-dimercaptosuccinate (EEDMS), conveniently prepd. from dimercaptosuccinic acid with 2-methoxyethanol and 2-ethoxyethanol, resp. Mobilization studies in mice of aged in vivo Cd deposits using 5 i.p. injections of 0.40 mmol/kg of each chelator in peanut oil clearly indicate that MEDMS and EEDMS are significantly superior to BAL in depleting the whole body burden of Cd. The redns. caused by MEDMS and EEDMS were .apprx.20% and 26%, resp., whereas under similar dosage regimens BAL effected about only a 12% redn. The esters were neither equal nor superior to BAL for the redn. of renal Cd levels, MEDMS being the least effective. For the mobilization of hepatic Cd deposits, both were quite promising (MEDMS, 20%; EEDMS, 34% redn.) compared to BAL (only 2% redn.). There was no accumulation of Cd with either MEDMS or EEDMS in any of the other organs examd.: spleen, testes, pancreas, and particularly the brain. These compds. enhance the fecal excretion of Cd by a factor of 25-40-fold, but have very little effect on the urinary excretion of this element. Thus, the order of overall efficacy is EEDMS > MEDMS > BAL, considering the liver and whole body burdens of Cd, but BAL > EEDMS > MEDMS in terms of the efficacy in reducing Cd levels in the kidneys.

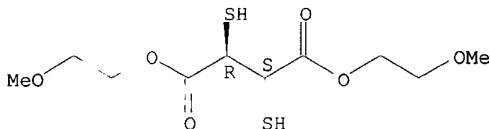
IT 132572-49-7P 132572-50-0P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of and cadmium mobilization by)

RN 132572-49-7 HCA

CN Butanedioic acid, 2,3-dimercapto-, bis(2-methoxyethyl) ester, (R\*,S\*)-(9CI) (CA INDEX NAME)

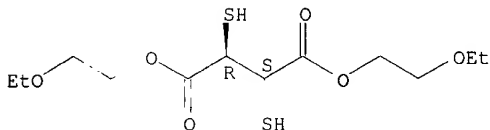
Relative stereochemistry.



RN 132572-50-0 HCA

CN Butanedioic acid, 2,3-dimercapto-, bis(2-ethoxyethyl) ester, (R\*,S\*)-(9CI) (CA INDEX NAME)

Relative stereochemistry.



L39 ANSWER 70 OF 155 HCA COPYRIGHT 2003 ACS

111:52417 The role of non-specific esterases in insecticide resistance to malathion in the diamondback moth *Plutella xylostella*. Doichuanngam, K.; Thornhill, R. A. (Dep. Zool. Comp. Physiol., Univ. Birmingham, Birmingham, B15 2TT, UK). Comparative Biochemistry and Physiology, Part C: Pharmacology, Toxicology & Endocrinology, 93C(1), 81-5 (English) 1989. CODEN: CBPCEE. ISSN: 0742-8413.

AB Esterases play an important role in the mechanism of resistance to malathion in the diamondback moth *P. xylostella*. These enzymes metabolize

malathion to less toxic metabolites such as malathion monocarboxylic acid and malathion dicarboxylic acid. The rate of metab. to nontoxic compds. is more rapid in the resistant strain compared with the susceptible strain. Selection of the susceptible strain with malathion over 8 generations gives rise to an increased resistance to malathion that can be correlated with an increase in esterases, particularly in carboxylesterases.

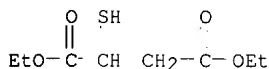
IT 23060-14-2

RL: BIOL (Biological study)

(malathion metabolite in diamondback moth, detoxication in relation to)

RN 23060-14-2 HCA

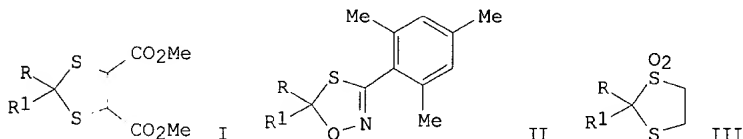
CN Butanedioic acid, mercapto-, diethyl ester (9CI) (CA INDEX NAME)



L39 ANSWER 80 OF 155 HCA COPYRIGHT 2003 ACS

109:22910 Thio ketones and enethiolates by 1,3-anionic cycloreversion of dithiolane derivatives. Schaumann, Ernst; Ruehter, Gerd (Inst. Org. Chem., Univ. Hamburg, Hamburg, D-2000/13, Fed. Rep. Ger.). Chemische Berichte, 121(6), 1159-63 (German) 1988. CODEN: CHBEAM. ISSN: 0009-2940. OTHER SOURCES: CASREACT 109:22910.

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AB The reactive thioketones, RR1C:S [R = R1 = Me; RR1 = (CH<sub>2</sub>)<sub>5</sub>; R = Me, R1 = Ph] were generated by cycloreversion of the anions of 1,3-dithiolane-4,5-dicarboxylates I and were trapped by mesitoxime in a 1,3-dipolar cycloaddn. to give oxathiazoles II. From the fragmentation of anions of 1,3-dithiolane 1,1-dioxides III (R = R1 = Me, Ph; R = Me, R1 = Ph), thiobenzophenone was isolated, whereas thioketones RR1C:S (R = R1 = Me; R = Me, R1 = Ph) with an .alpha.-hydrogen were deprotonated in situ to provide enethiolates CH<sub>2</sub>:CR1S- which on treatment with 2,4,6-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>C.tplbond.NO gave thiohydroximates 2,4,6-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>C(:NOH)SC(:CH<sub>2</sub>)R1.

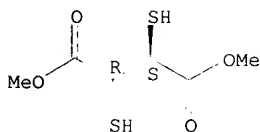
IT 27887-85-0

RL: RCT (Reactant); RACT (Reactant or reagent)  
(cyclocondensation of, with ketones)

RN 27887-85-0 HCA

CN Butanedioic acid, 2,3-dimercapto-, dimethyl ester, (2R,3S)-rel- (9CI) (CA INDEX NAME)

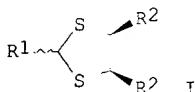
Relative stereochemistry.



L39 ANSWER 90 OF 155 HCA COPYRIGHT 2003 ACS

105:78477 Fragmentation of 1,3-dithiolane-derived sulfur ylides. A convenient thioaldehyde synthesis. Schaumann, Ernst; Ruehter, Gerd (Inst. Org. Chem., Univ. Hamburg, Hamburg, D-2000/13, Fed. Rep. Ger.). Tetrahedron Letters, 26(43), 5265-8 (English) 1985. CODEN: TELEAY. ISSN: 0040-4039. OTHER SOURCES: CASREACT 105:78477.

GI



AB Thioacetalization of  $R_1CHO$  ( $R_1 = H, Me, Me_3C, Ph, CH_2=CH$ ) with  $R_2CH(SH)CH(SH)R_2$  ( $R_2 = CO_2H, CO_2Me, Ph$ ) gave the dithiolanes I. I were methylated, then regiospecifically deprotonated to give the thioaldehydes  $R_1CHS$ , which were trapped with mesitronitrile oxide.

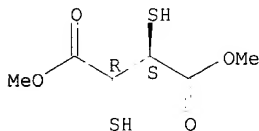
IT 27887-85-0

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with aldehydes)

RN 27887-85-0 HCA

CN Butanedioic acid, 2,3-dimercapto-, dimethyl ester, (2R,3S)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L39 ANSWER 100 OF 155 HCA COPYRIGHT 2003 ACS

99:135485 Formation of metabolites of malathion during storage of wettable powder formulations. Roy, Pranab; Sarup, Prakash (Div. Entomol., Indian Agric. Res. Inst., New Delhi, 110012, India). Journal of Entomological Research, 5(2), 183-7 (English) 1981. CODEN: JEREDP. ISSN: 0378-9519.

AB Various malathion [121-75-5] wettable powder formulations were subjected to long-term storage at ambient temp. and to accelerated storage under uniform pressure of 25 g/cm<sup>2</sup> at 54.degree. for 24 h. The bioefficacy of such formulations was evaluated against the adults of *Sitophilus oryzae*. The most effective formulation involved diluents bentonite + diatomite and Lissapol D [8063-52-3] as wetting agent, or deactivated fuller's earth

and Hyoxyd AAO [78810-06-7] as wetting agent. The least effective formulation was based on China clay + fuller's earth as diluents, irres. of these wetting agents. Two metabolites of malathion formed during storage of formulations differed in their concns. TLC suggested that ester groups might not have suffered any degrdn., but cleavage occurred at the P-S bond.

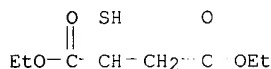
IT 23060-14-2

RL: BIOL (Biological study)

(malathion degrdn. product, formation during storage of wettable powder formulations)

RN 23060-14-2 HCA

CN Butanedioic acid, mercapto-, diethyl ester (9CI) (CA INDEX NAME)



L39 ANSWER 110 OF 155 HCA COPYRIGHT 2003 ACS

93:102019 Kinetic investigations on the reaction of technetium(V) gluconate with meso-dimercaptosuccinic acid and meso-dimercaptosuccinic acid dimethylester. Spies, H.; Johannsen, B.; Muenze, R.; Unverferth, K. (Cent. Inst. Nucl. Res., Rossendorf, Ger. Dem. Rep.). Radiochemical and Radioanalytical Letters, 43(5), 311-18 (English) 1980. CODEN: RRALAZ. ISSN: 0079-9483.

AB Results concerning the kinetics of the ligand exchange reaction of Tc(V) gluconate with mesodimercaptosuccinic acid and meso-dimercaptosuccinic acid dimethyl ester, resp., are presented.

IT 27887-85-0

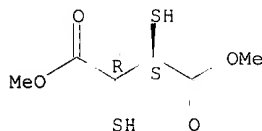
RL: RCT (Reactant); RACT (Reactant or reagent)

(substitution reaction of, for gluconate in technetium(V) complex, kinetics of)

RN 27887-85-0 HCA

CN Butanedioic acid, 2,3-dimercapto-, dimethyl ester, (2R,3S)-rel- (9CI) (CA INDEX NAME)

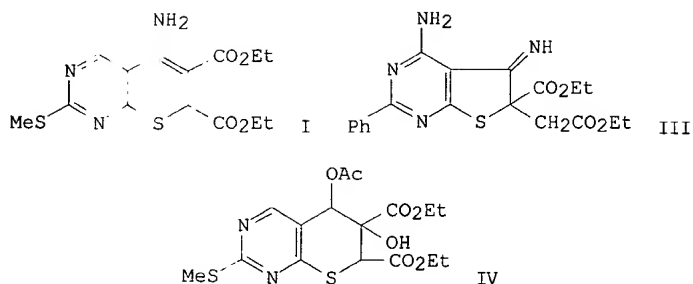
Relative stereochemistry.



L39 ANSWER 120 OF 155 HCA COPYRIGHT 2003 ACS

87:84943 Synthesis of thiopyrano[2,3-d]pyrimidines and thieno[2,3-d]pyrimidines. Santilli, Arthur A.; Scotese, Anthony C. (Res. Dev. Div., Wyeth Lab., Inc., Radnor, PA, USA). Journal of Heterocyclic Chemistry, 14(3), 361-5 (English) 1977. CODEN: JHTCAD. ISSN: 0022-152X.

GI



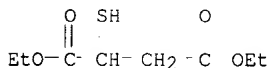
AB The reaction of 4-chloro-5-cyano-2-methylthiopyrimidine with  $\text{EtO}_2\text{CCH}_2\text{CH}(\text{SH})\text{CO}_2\text{Et}$  in refluxing  $\text{EtOH}$  gave diethyl 5-amino-2-(methylthio)-7H-thiopyrano[2,3-d]pyrimidine-6,7-dicarboxylate (I). Displacement of the methylthio group in I with  $\text{H}_2\text{NNH}_2$  gave the corresponding hydrazino deriv. which underwent Schiff base formation with  $\text{PhCHO}$  or  $2,6\text{-Cl}_2\text{C}_6\text{H}_3\text{CHO}$ . Treatment of I in  $\text{Ac}_2\text{O}$  gave the corresponding diacetylated amino deriv. Partial sapon. of I with  $\text{NaOH}$  gave 5-amino-2-(methylthio)-7H-thiopyrano[2,3-d]pyrimidine-6,7-dicarboxylic acid 6 ethyl ester. The reaction of 4-amino-6-chloro-5-cyano-2-phenylpyrimidine with  $\text{EtO}_2\text{CCH}_2\text{CH}(\text{SH})\text{CO}_2\text{Et}$  resulted in the formation of Et 4-amino-6-(ethoxycarbonyl)-5,6-dihydro-5-amino-2-phenylthieno[2,3-d]pyrimidine-6-acetate (III), which when subjected to hydrolysis, gave Et 4,5-diamino-2-phenylthieno[2,3-d]pyrimidine-6-acetate-HCl. Diazotization of I with  $\text{NaNO}_2$  in  $\text{HOAc}$  gave diethyl 5-(acetyloxy)-6,7-dihydro-6-hydroxy-2-(methylthio)-5H-thiopyrano[2,3-d]pyrimidine-6,7-dicarboxylate (IV).

IT 23060-14-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(cyclization of, with chloro(methylthio)cyanopyrimidine,  
thiopyranopyrimidinedicarboxylate deriv. from)

RN 23060-14-2 HCA

CN Butanedioic acid, mercapto-, diethyl ester (9CI) (CA INDEX NAME)



L39 ANSWER 130 OF 155 HCA COPYRIGHT 2003 ACS

78:110476 Influence of substituents on preparation and tautomerism of open-chain .beta.-thio keto esters. Structure determination by NMR and infrared spectroscopy. Duus, F. (Dep. Chem., Aarhus Univ., Aarhus, Den.). Tetrahedron, 28(24), 5923-47 (English) 1972. CODEN: TETRAB. ISSN: 0040-4020.

GI For diagram(s), see printed CA Issue.

AB The acid-catalyzed reactions of 36 .beta.-keto esters,  $\text{RCOCHR}_1\text{CO}_2\text{R}_2$  (I), with  $\text{H}_2\text{S}$  were studied. Passing  $\text{H}_2\text{S}$  and  $\text{HCl}$  at  $-60^\circ$  or higher temps. through I ( $\text{R}_1 = \text{H}$ ) in  $\text{MeCN}$  or  $\text{EtOH}$  gave tautomers of  $\text{RCSCHR}_1\text{CO}_2\text{R}_2$  (II), whereas .alpha.-substituted I gave gem-dithiols,  $\text{RC}(\text{SH})_2\text{CHR}_1\text{CO}_2\text{R}_2$ , or II depending on  $\text{R}_1$  and the reaction conditions. Alkyl halides and II Tl(I) salts gave S-alkylation. NMR and ir showed that the .beta.-thioxo esters II ( $\text{R}_1 = \text{H}$ ) exist as the intramol. H-bonded cis-enethiol tautomers (III). The .alpha.-substituted esters exist as approx. 1:1 mixts. of the

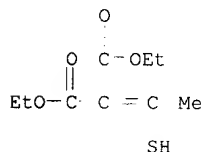
cis- and trans-enethiols, due to steric crowding. NMR chem. shifts as indicators of intramol. H-bonding and the long-range through-bond and through-space couplings involving enethiolic protons were discussed.

IT 20621-66-3P 40553-26-2P 40553-33-1P  
40553-51-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

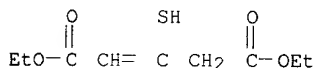
RN 20621-66-3 HCA

CN Propanedioic acid, (1-mercaptoethylidene)-, diethyl ester (9CI) (CA INDEX NAME)



RN 40553-26-2 HCA

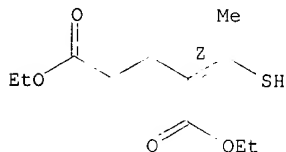
CN 2-Pentenedioic acid, 3-mercapto-, diethyl ester (9CI) (CA INDEX NAME)



RN 40553-33-1 HCA

CN Pentanedioic acid, 2-(1-mercaptoethylidene)-, diethyl ester, (Z)- (9CI)  
(CA INDEX NAME)

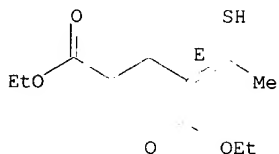
Double bond geometry as shown.



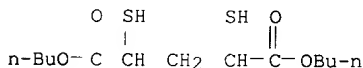
RN 40553-51-3 HCA

CN Pentanedioic acid, 2-(1-mercaptoethylidene)-, diethyl ester, (E)- (9CI)  
(CA INDEX NAME)

Double bond geometry as shown.



- 63:54225 Original Reference No. 63:9821c-d Preparation of butyl ester of methylenebis(thioglycolic acid). Haase, Hans J.; Grimm, Horst DD 31323 19650501, 2 pp. (Unavailable). APPLICATION: DD 19620831.
- AB Crude methylenebis(thioglycolic acid) was esterified directly with BuOH in the absence of mineral acid catalyst. A mixt. of 175 kg. 90% thioglycolic acid and 71 kg. 36.5% aq. HCHO was warmed to 70.degree. to initiate an exothermic reaction that brought the mixt. to boiling, 45 l. H2O distd., 210 kg. BuOH added, heating continued 10 hrs. while removing water azeotropically, and excess BuOH removed by warming to 60-70 135.degree. to recover 264 kg. title compd. as a yellow oil.
- IT 3659-03-8, Glutaric acid, 2,4-dimercapto, dibutyl ester  
(prepn. of)
- RN 3659-03-8 HCA
- CN Glutaric acid, 2,4-dimercapto-, dibutyl ester (7CI, 8CI) (CA INDEX NAME)

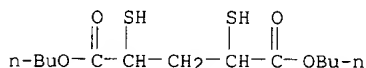


L39 ANSWER 150 OF 155 HCA COPYRIGHT 2003 ACS

54:67782 Original Reference No. 54:12973e-i,12974a Incorporation of mercaptomethyl groups into .beta.-dicarbonyl compounds by means of chloromethyl acetyl sulfide. Bohme, H.; Kreitz, K.; Nurnberg, E. (Univ. Marburg, Germany). Arch. Pharm., 292, 456-61 (Unavailable) 1959

- AB cf. CA 49, 2322f. EtCO2CHMeCO2Et (I), AcCHMeCO2Et (II), or .alpha.-methylindandione (III) reacted as their Na compds. with ClCH2SAC (IV) (CA 54, 10931a). Thus, 17.4 g. I was added dropwise to 2.3 g. Na in 120 ml. Et2O (after the Na had dissolved), 12.5 g. IV in 40 ml. Et2O added, the mixt. stirred until colorless, heated on a water bath 30 min., ice-cold H2O added, the Et2O phase sepd., extn. with Et2O twice repeated, the combined Et2O exts. concd., and fractionated to give 14.1 g. EtCO2CMe(CH2SAC)CO2Et, b11 160.degree., which (26.2 g.) dissolved in 200 ml. N HCl-abs. EtOH and kept 60 hrs. at room temp. gave on fractionation 19.8 g. EtCO2CMe(CH2SH)CO2Et (V), b10 125.degree.. Oxidn. of 2.2 g. V with N iodine-MeOH gave 3.5 g. bis(.beta.,.beta.'-dicarbethoxypropyl) disulfide, b10-2 100-20.degree.). With 14.4 g. II instead of I the same reactions yielded 13 g. AcCMe(CH2SAC)CO2Et (VI), b12 143.degree., which (11.7 g.) on addn. of 105 ml. 1.5N HCl-abs. EtOH gave 5.7 g. AcCMe(CH2SH)CO2Et, b12 126.degree., which (5.7 g.) was converted like V to 5 g. bis(.beta.-acetyl-.beta.-carbethoxypropyl) disulfide, b0.05 130-40.degree.. By the same reactions, 37.5 g. Et 2-(acetylthiomethyl)-1-cyclohexanone-2-carboxylate (VII), b0.05 122.degree., was prepd. from 57 g. Et cyclohexanone-2-carboxylate, 7.7 g. Na, and 41.3 g. IV, with C6H6 instead of Et2O as solvent. VII (20 g.) was converted like VI to 8 g. Et 2-mercaptopmethyl-1-cyclohexanone-2-carboxylate, b0.01 86-8.degree., n24.5D 1.4920. This (6.5 g.) was treated like V to give 3 g. bis(1-cyclohexanone-2-carboxylic acid ethyl ester) 2,2'-methylene disulfide, b0.001 165.degree., n23D 1.5145. Et 2-(acetylthiomethyl)-1-cyclopentanone-2-carboxylate (21 g.), b0.1 122.degree., was prepd. like VII with 68 g. K salt of Et cyclopentanone-2-carboxylate. With 9.1 g. Na deriv. of III instead of Na deriv. of I and 0.2 g. IV with MeOH solvent, and addn. of H2O and Et2O after heating, the Et2O ext. obtained yielded on standing 10 g. .alpha.-methyl-.alpha.-acetylthiomethylindandione, m. 93.degree. (MeOH), which (12.4 g.), treated with HCl, yielded on fractionation 9 g. .alpha.-methyl-.alpha.-mercaptopmethylindandione, b0.01 60.degree., m. 47.5.degree., which (10.3 g.), oxidized with KI-H2O2, yielded 9 g. .alpha.-methylbisindandionylmethyl) disulfide, m. 119.degree.

- 63:54225 Original Reference No. 63:9821c-d Preparation of butyl ester of methylenebis(thioglycolic acid). Haase, Hans J.; Grimm, Horst DD 31323 19650501, 2 pp. (Unavailable). APPLICATION: DD 19620831.
- AB Crude methylenebis(thioglycolic acid) was esterified directly with BuOH in the absence of mineral acid catalyst. A mixt. of 175 kg. 90% thioglycolic acid and 71 kg. 36.5% aq. HCHO was warmed to 70.degree. to initiate an exothermic reaction that brought the mixt. to boiling, 45 l. H2O distd., 210 kg. BuOH added, heating continued 10 hrs. while removing water azeotropically, and excess BuOH removed by warming to 60-70 135.degree. to recover 264 kg. title compd. as a yellow oil.
- IT 3659-03-8, Glutaric acid, 2,4-dimercapto, dibutyl ester (prepn. of)
- RN 3659-03-8 HCA
- CN Glutaric acid, 2,4-dimercapto-, dibutyl ester (7CI, 8CI) (CA INDEX NAME)

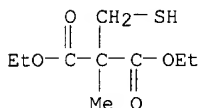


L39 ANSWER 150 OF 155 HCA COPYRIGHT 2003 ACS

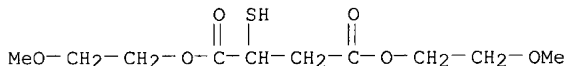
- 54:67782 Original Reference No. 54:12973e-i,12974a Incorporation of mercaptomethyl groups into .beta.-dicarbonyl compounds by means of chloromethyl acetyl sulfide. Bohme, H.; Kreitz, K.; Nurnberg, E. (Univ. Marburg, Germany). Arch. Pharm., 292, 456-61 (Unavailable) 1959
- AB cf. CA 49, 2322f. EtCO2CHMeCO2Et (I), AcCHMeCO2Et (II), or .alpha.-methylindandione (III) reacted as their Na compds. with ClCH2SAC (IV) (CA 54, 10931a). Thus, 17.4 g. I was added dropwise to 2.3 g. Na in 120 ml. Et2O (after the Na had dissolved), 12.5 g. IV in 40 ml. Et2O added, the mixt. stirred until colorless, heated on a water bath 30 min., ice-cold H2O added, the Et2O phase sepd., extn. with Et2O twice repeated, the combined Et2O exts. concd., and fractionated to give 14.1 g. EtCO2CMe(CH2SAC)CO2Et, b11 160.degree., which (26.2 g.) dissolved in 200 ml. N HCl-abs. EtOH and kept 60 hrs. at room temp. gave on fractionation 19.8 g. EtCO2CMe(CH2SH)CO2Et (V), b10 125.degree.. Oxidn. of 2.2 g. V with N iodine-MeOH gave 3.5 g. bis(.beta.,.beta.'-dicarbethoxypropyl) disulfide, b10-2 100-20.degree.). With 14.4 g. II instead of I the same reactions yielded 13 g. AcCMe(CH2SAC)CO2Et (VI), b12 143.degree., which (11.7 g.) on addn. of 105 ml. 1.5N HCl-abs. EtOH gave 5.7 g. AcCMe(CH2SH)CO2Et, b12 126.degree., which (5.7 g.) was converted like V to 5 g. bis(.beta.-acetyl-.beta.-carbethoxypropyl) disulfide, b0.05 130-40.degree.. By the same reactions, 37.5 g. Et 2-(acetylthiomethyl)-1-cyclohexanone-2-carboxylate (VII), b0.05 122.degree., was prepd. from 57 g. Et cyclohexanone-2-carboxylate, 7.7 g. Na, and 41.3 g. IV, with C6H6 instead of Et2O as solvent. VII (20 g.) was converted like VI to 8 g. Et 2-mercaptomethyl-1-cyclohexanone-2-carboxylate, b0.01 86-8.degree., n24.5D 1.4920. This (6.5 g.) was treated like V to give 3 g. bis(1-cyclohexanone-2-carboxylic acid ethyl ester) 2,2'-methylene disulfide, b0.001 165.degree., n23D 1.5145. Et 2-(acetylthiomethyl)-1-cyclopentanone-2-carboxylate (21 g.), b0.1 122.degree., was prepd. like VII with 68 g. K salt of Et cyclopentanone-2-carboxylate. With 9.1 g. Na deriv. of III instead of Na deriv. of I and 0.2 g. IV with MeOH solvent, and addn. of H2O and Et2O after heating, the Et2O ext. obtained yielded on standing 10 g. .alpha.-methyl-.alpha.-acetylthiomethylindandione, m. 93.degree. (MeOH), which (12.4 g.), treated with HCl, yielded on fractionation 9 g. .alpha.-methyl-.alpha.-mercaptomethylindandione, b0.01 60.degree., m. 47.5.degree., which (10.3 g.), oxidized with KI-H2O2, yielded 9 g. .alpha.-methylbisindandionylmethyl) disulfide, m. 119.degree.

(MeOH-H<sub>2</sub>O). Instead of IV, AcOCH<sub>2</sub>Cl (VIII) could be used for incorporation of the acetoxymethyl group by analogous reactions. Thus, 55 g. K salt of Et cyclopentanone-2-carboxylate in 250 ml. abs. C<sub>6</sub>H<sub>6</sub> was stirred with 31.2 g. VIII, refluxed, filtered from the KCl, concd. in vacuo, and fractionated to give 23 g. Et 2-acetoxymethyl-1-cyclopentanone-2-carboxylate, b<sub>0.05</sub> 90-3.degree.. Similarly, 50 g. Me cyclopentanone-2-carboxylate and 30.5 g. VIII yielded 13 g. Me 2-acetoxymethyl-1-cyclopentanone-2-carboxylate, b<sub>9</sub> 150-4.degree..

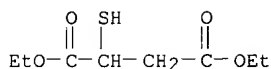
IT 99183-68-3, Malonic acid, (mercaptomethyl)methyl-, diethyl ester  
(prepn. of)  
RN 99183-68-3 HCA  
CN Malonic acid, (mercaptomethyl)methyl-, diethyl ester (6CI) (CA INDEX NAME)



L39 ANSWER 151 OF 155 HCA COPYRIGHT 2003 ACS  
53:114399 Original Reference No. 53:20529e-f Skin sensitization by mercaptans of low molecular weight. Voss, J. G. (Procter & Gamble Co., Cincinnati, O.). J. Invest. Dermatol., 31, 373-9 (Unavailable) 1958.  
AB Mercaptans in concns. equiv. to 1.25% thioglycolate were applied in patch tests, left in situ for 24 hrs., and repeated 3 times weekly for 3 weeks. After 10 days fresh patches were applied to the original sites and to fresh sites adjacent to the original site to distinguish between hypersensitivity and skin fatigue. Of 44 compds. tested 40 were found to sensitize man and (or) guinea pig. Thioglycolic and 3-mercaptopropionic acid showed no allergenic activity; derivs. of thioglycolamide were usually the most strongly allergenic. Cross-sensitization to thioglycolate by other mercaptans was observed in 3 cases.  
IT 91007-96-4, Succinic acid, mercapto-, bis(2-methoxyethyl) ester  
(skin sensitization by)  
RN 91007-96-4 HCA  
CN Succinic acid, mercapto-, bis(2-methoxyethyl) ester (6CI, 7CI) (CA INDEX NAME)



L39 ANSWER 152 OF 155 HCA COPYRIGHT 2003 ACS  
51:66416 Original Reference No. 51:11999d Decomposition of diazo ketones by cuprous oxide. III. Synthesis of hexatetracontane-1,46-dioic acid. Hnevsova, Vera; Smely, Vaclav; Ernest, Ivan Collection Czech. Chem. Commun., 21, 1459-66 (German) 1956.  
AB See C.A. 50, 13749b.  
IT 23060-14-2, Succinic acid, mercapto-, diethyl ester  
(prepn. of)  
RN 23060-14-2 HCA  
CN Butanedioic acid, mercapto-, diethyl ester (9CI) (CA INDEX NAME)



L39 ANSWER 153 OF 155 HCA COPYRIGHT 2003 ACS

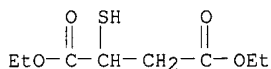
51:66415 Original Reference No. 51:11999d Preparing mercaptosuccinic acid.  
Emr, Antonin; Roubinek, Frantisek Collection Czech. Chem. Commun., 21,  
1651-3 (German) 1956.

AB See C.A. 50, 8460d.

IT 23060-14-2, Succinic acid, mercapto-, diethyl ester  
(prepn. of)

RN 23060-14-2 HCA

CN Butanedioic acid, mercapto-, diethyl ester (9CI) (CA INDEX NAME)



L39 ANSWER 154 OF 155 HCA COPYRIGHT 2003 ACS

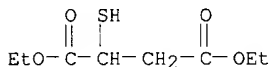
51:47164 Original Reference No. 51:8782g-h Preparing thiomalic acid and its  
ethyl ester. Emr, Antonin CS 85677 19560615 (Unavailable).  
APPLICATION: CS .

AB Into 1200 ml. dry pyridine (I) satd. at -10.degree. with dry H2S to  
contain 55-60 mg. H2S/ml. is dropped with stirring and bubbling of H2S 120  
g. di-Et fumarate in 120 ml. dry I at 5-10.degree.. After stirring at  
room temp. for 1-1.5 hrs. under continuous bubbling of H2S, I is distd. in  
vacuo and the residue distd. to give 115 g. di-Et thiomalate, b9  
120.degree.. The main side product is di-Et thiodisuccinate, b0.1  
154.degree..

IT 23060-14-2, Succinic acid, mercapto-, diethyl ester  
(prepn. of)

RN 23060-14-2 HCA

CN Butanedioic acid, mercapto-, diethyl ester (9CI) (CA INDEX NAME)



L39 ANSWER 155 OF 155 HCA COPYRIGHT 2003 ACS

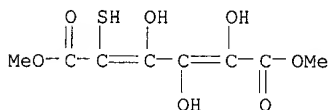
51:34805 Original Reference No. 51:6601h-i,6602a-d Reductones derived from  
3,4-dihydroxy-2,5-dicarboxylic esters of furan, thiophene,  
N-phenylpyrrole, and selenophene. v. Euler, Hans; Hasselquist, Hans  
(Univ. Stockholm). Z. physiol. chem., Hoppe-Seyler's, 306, 49-55  
(Unavailable) 1956.

GI For diagram(s), see printed CA Issue.

AB cf. C.A. 49, 14844a. Compds. having the general structure  
MeO2CC:C(OH).C(OH):C(CO2Me).R (I) where R is O, S, Se, or Ph, were found  
to undergo ring cleavage under conditions ranging from soln. in warm H2O  
to heating with weakly alk. solns. or treatment with Tillmans reagent to  
give products having the general structure [MeO2CC(RH):C(OH)]2 (II).  
Di-Me 3,4-dihydroxyfuran-2,5-dicarboxylate (I, R, = O), .lambda. 282.5  
m.mu. (8.15 .gamma./ml. in H2O) (log .epsilon. 4.25), gave no reaction  
with AcOH-phenylhydrazine but gave a di-Ac deriv. m. 141.degree. and was

oxidized by iodine soln. to a product that gave yellowish red crystals with phenylhydrazine, m. 130-2.degree.. On treatment of the ester with an equiv. of alkali, a salt was obtained. The salt or the ester gave 3,4-dihydroxyfuran-2-carboxylic acid, m. 139.degree. (decompn. with gas evolution), on heating in the absence of air with 2N NaOH. The effect of the ring-cleavage product, di-Me 2,3,4,5-tetrahydroxy-2,4-hexadienedioate (II, R = O), on the viscosity of a pectin soln. was measured and compared to the similar effect of ascorbic acid. Di-Me 3,4-dihydroxythiophene-2,5-dicarboxylate (I, R = S), m. 174.degree. (di-Ac deriv., m. 105.5-6.5.degree.), on ring cleavage in alk. soln. gave di-Me 2,3,4-trihydroxy-5-thiol-2,4-hexadienedioate (II, R = S). Di-Me N-phenyl-3,4-dihydroxypyrrole-2,5-dicarboxylate (I, R = NPh), m. 192.degree. (di-Ac deriv., m. 188.degree.), underwent ring cleavage to di-Me 2,3,4-trihydroxy-5-anilino-2,4-hexadienedioate (II, R = NPh). The di-Et deriv. of di-Me 3,4-dihydroxyselenophene-2,5-dicarboxylate (I, R = Se) was prep'd. by satg. 4.5 g. NaOH in 10 ml. H<sub>2</sub>O with H<sub>2</sub>Se, adding 19 g. ClCH<sub>2</sub>CO<sub>2</sub>H, 20 g. Na<sub>2</sub>CO<sub>3</sub>, and 10 ml. H<sub>2</sub>O, then adding 22 g. concd. H<sub>2</sub>SO<sub>4</sub> after 1 hr., heating, evapg. to dryness, extg. with MeOH, sepg. the salt, dilg. with H<sub>2</sub>O, and extg. with C<sub>6</sub>H<sub>6</sub>. Di-Me selenodiglycolate (1.6 g.), b<sub>1</sub> 129-30.degree. was treated with 1.5 g. di-Et oxalate and 0.75 g. Na in 15 ml. MeOH. Treatment with coned. HCl and recrystn. from EtOH gave 0.75 g. di-Me 3,4-diethoxyselenophene-2,5-dicarboxylate, m. 209.degree.. Treatment with Ac<sub>2</sub>O gave di-Me 3,4-diacetoxyselenophene-2,5-dicarboxylate, m. 141.degree.. The selenophene ring was unstable, and cleaved in H<sub>2</sub>O at 50.degree. to di-Me 2,3,4-trihydroxy-5-selenyl-2,4-hexadienedioate (II, R = Se). All the ring-cleavage products displayed biol. activity, inhibiting germination, mitosis, and the development of the Yoshida-Asctites carcinoma in rats. They decreased the viscosity of pectin and mucoid solns. and increased the permeability of cells.

IT 108754-29-6, Muconic acid, 2,3,4-trihydroxy-5-mercapto-, dimethyl ester  
(prepn. of)  
RN 108754-29-6 HCA  
CN Muconic acid, 2,3,4-trihydroxy-5-mercapto-, dimethyl ester (6CI) (CA INDEX NAME)



=> d L98 1-12 cbib abs hitind hitstr

L98 ANSWER 1 OF 12 HCA COPYRIGHT 2003 ACS

137:170401 Organic thiol, metal-free stabilizers and **plasticizers** for halogen-containing polymers. Starnes, William Herbert; Du, Bin (The College of William & Mary, USA). U.S. Pat. Appl. Publ. US 2002115769 A1 20020822, 12 pp., Cont.-in-part of U.S. Ser. No. 737,973. (English). CODEN: USXXCO. APPLICATION: US 2001-884306 20010619. PRIORITY: US 2000-737973 20001215.

AB (HS)zR3[CO2R4(SH)y]x and (HS)zR3[OCOR4(SH)y]x (R3, R4 = C1-20 hydrocarbyl, y, z = 0-10, x = 1-10) are useful as **heat stabilizers** and **plasticizers** for halopolymers giving compns. free of strong offensive odors. A typical compn. contained Oxyvinyls 455F (PVC ) 100, HS(CH<sub>2</sub>)6OCO(CH<sub>2</sub>)4CO<sub>2</sub>(CH<sub>2</sub>)6SH 35, and stearic acid 0.1 part.

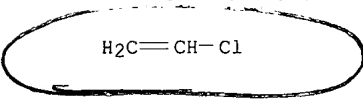
IC ICM C08K005-36

ICS C11D001-28  
NCL 524316000  
CC 37-6 (Plastics Manufacture and Processing)  
ST halopolymer aliph thiol ester odorless **heat stabilizer**  
; PVC bismercaptohexyl adipate **heat stabilizer**  
IT **Heat stabilizers**  
**Plasticizers**  
(odorless, org. thiol, metal-free stabilizers and **plasticizers**  
for halogen-contg. polymers)  
IT Chlorinated natural rubber  
RL: POF (Polymer in formulation); USES (Uses)  
(odorless, org. thiol, metal-free stabilizers and **plasticizers**  
for halogen-contg. polymers)  
IT Natural rubber, uses  
RL: POF (Polymer in formulation); USES (Uses)  
(rubber hydrochloride; odorless, org. thiol, metal-free stabilizers and  
**plasticizers** for halogen-contg. polymers)  
IT Esters, preparation  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP  
(Preparation); USES (Uses)  
(thiol; odorless, org. thiol, metal-free stabilizers and  
**plasticizers** for halogen-contg. polymers)  
IT 9002-86-2, PVC  
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)  
(OxyVinyls 455F; odorless, org. thiol, metal-free stabilizers and  
**plasticizers** for halogen-contg. polymers)  
IT 115-77-5, Pentaerythritol, reactions 1633-78-9, 6-Mercapto-1-hexanol  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(additive precursor; odorless, org. thiol, metal-free stabilizers and  
**plasticizers** for halogen-contg. polymers)  
IT 65291-46-5P, Bis(2-ethylhexyl) mercaptosuccinate 70537-68-7P,  
Pentaerythritol tetrakis(2-mercaptopropionate) 416900-24-8P,  
Bis(6-mercaptohexyl)adipate  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP  
(Preparation); USES (Uses)  
(odorless, org. thiol, metal-free stabilizers and **plasticizers**  
for halogen-contg. polymers)  
IT 9002-85-1, Polyvinylidene chloride 9002-86-2D, PVC,  
chlorinated 9002-88-4D, **Polyethylene**,  
chlorinated 9003-53-6D, Polystyrene, chlorinated  
9010-98-4, Polychloroprene 25951-54-6, **Polyvinyl**  
**bromide** 51736-72-2, Polyvinylidene bromide  
RL: POF (Polymer in formulation); USES (Uses)  
(odorless, org. thiol, metal-free stabilizers and **plasticizers**  
for halogen-contg. polymers)  
IT 9002-86-2, PVC  
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)  
(OxyVinyls 455F; odorless, org. thiol, metal-free stabilizers and  
**plasticizers** for halogen-contg. polymers)  
RN 9002-86-2 HCA  
CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

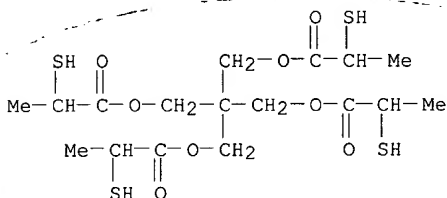
CM 1

CRN 75-01-4

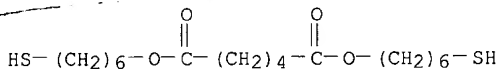
CMF C2 H3 C1

H<sub>2</sub>C=CH-Cl

IT 70537-68-7P, Pentaerythritol tetrakis(2-mercaptopropionate)  
 416900-24-8P, Bis(6-mercaptohexyl)adipate  
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP  
 (Preparation); USES (Uses)  
 (odorless, org. thiol, metal-free stabilizers and **plasticizers**  
 for halogen-contg. polymers)  
 RN 70537-68-7 HCA  
 CN Propanoic acid, 2-mercapto-, 2,2-bis[(2-mercapto-1-oxopropoxy)methyl]-1,3-  
 propanediyl ester (9CI) (CA INDEX NAME)



RN 416900-24-8 HCA  
 CN Hexanedioic acid, bis(6-mercaptohexyl) ester (9CI) (CA INDEX NAME)



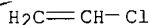
IT ~~9002-86-2D, PVC, chlorinated 9002-88-4D,~~  
 Polyethylene, chlorinated 9003-53-6D,  
 Polystyrene, chlorinated 9010-98-4, Polychloroprene  
 RL: POF (Polymer in formulation); USES (Uses)  
 (odorless, org. thiol, metal-free stabilizers and **plasticizers**  
 for **halogen**-contg. polymers)

RN 9002-86-2 HCA  
 CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 Cl

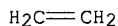


RN 9002-88-4 HCA  
 CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1

CMF C2 H4



RN 9003-53-6 HCA  
 CN Benzene, ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 100-42-5  
CMF C8 H8 $\text{H}_2\text{C}=\text{CH}-\text{Ph}$ 

RN 9010-98-4 HCA

CN 1,3-Butadiene, 2-chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 126-99-8  
CMF C4 H5 Cl
$$\begin{array}{c} \text{CH}_2 \\ || \\ \text{Cl}-\text{C}-\text{CH}=\text{CH}_2 \end{array}$$

L98 ANSWER 2 OF 12 HCA COPYRIGHT 2003 ACS

137:34042 Organic thiol metal-free stabilizers and **plasticizers** for halogen-containing polymers, especially poly(vinyl chloride). Starnes, William H., Jr.; Du, Bin (The College of William and Mary, USA). PCT Int. Appl. WO 2002048250 A2 20020620, 50 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US48086 20011214. PRIORITY: US 2000-737973 20001215; US 2001-884306 20010619.

AB Compds. R6O2CR5(SH)uCO2R7 (R5-7 = straight or branched hydrocarbyl of 1-20 C atoms; u = 1-20) are used in polymers normally susceptible to deterioration and color change, which typically occurs during processing of the polymer or exposure to certain environments. An intimate mixt. of PVC and di(2-ethylhexyl) 5-mercapto isophthalate (0.044 mol) was heated under Ar at 170.degree. for 1.5 h and at the end of the heating period, the mixt. retained its initial white color.

IC ICM C08K005-00

CC 37-6 (Plastics Manufacture and Processing)

ST thiol **heat stabilizer plasticizer**  
PVC

IT Discoloration prevention agents

**Heat stabilizers****Plasticizers**(org. thiol metal-free stabilizers and **plasticizers** for halogen-contg. polymers, esp. poly(vinyl chloride))

IT Neoprene rubber, uses

RL: POF (Polymer in formulation); USES (Uses)

(org. thiol metal-free stabilizers and **plasticizers** for halogen-contg. polymers, esp. poly(vinyl chloride))IT **9010-98-4**

RL: POF (Polymer in formulation); USES (Uses)

(neoprene rubber, org. thiol metal-free stabilizers and **plasticizers** for halogen-contg. polymers, esp. poly(vinyl

RL: MOA (Modifier or additive use); USES (Uses)

(**plasticizers**, vinyl chloride polymer compns. contg., with good radiation resistance)

IT 60-24-2 96-27-5, 3-Mercapto-1,2-propanediol 112-55-0, Dodecylmercaptan  
 123-81-9, Ethylene glycol bis(mercaptoacetate) 557-05-1, Zinc  
 stearate 1191-08-8, 1,4-Dimercaptobutane 1592-23-0 2452-01-9, Zinc  
 laurate 4696-56-4, Calcium laurate 7539-05-1, Pentaerythritol  
 bis(.beta.-mercaptopropionate) 7634-42-6, 1,4-Dimercapto-2,3-butanediol  
 10193-95-0, 1,4-Butanediol bis(mercaptoacetate) 10193-96-1  
 , Trimethylolpropane tris(mercaptoacetate) 20142-85-2,  
 3-Methoxy-2-hydroxypropylmercaptan 24431-38-7, 2-Hydroxyoctylmercaptan  
 25807-94-7, 2-Hydroxybutylmercaptan 33377-77-4, Dipentaerythritol  
 tetrakis(mercaptoacetate) 73303-88-5 111532-30-0, 3-Octoxy-2-  
 hydroxypropylmercaptan 132252-77-8, 3-Octylthio-2-hydroxypropylmercaptan  
 132405-61-9, Propylene glycol mono-.beta.-mercaptopropionate 132899-16-2  
 RL: USES (Uses)

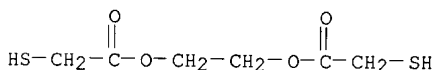
(vinyl chloride polymer compns. contg., with good radiation resistance)

IT 123-81-9, Ethylene glycol bis(mercaptoacetate) 7539-05-1  
 , Pentaerythritol bis(.beta.-mercaptopropionate) 10193-95-0,  
 1,4-Butanediol bis(mercaptoacetate) 10193-96-1,  
 Trimethylolpropane tris(mercaptoacetate)  
 RL: USES (Uses)

(vinyl chloride polymer compns. contg., with good radiation resistance)

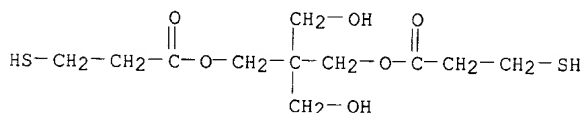
RN 123-81-9 HCA

CN Acetic acid, mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



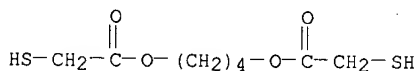
RN 7539-05-1 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis(hydroxymethyl)-1,3-propanediyl ester (9CI) (CA INDEX NAME)



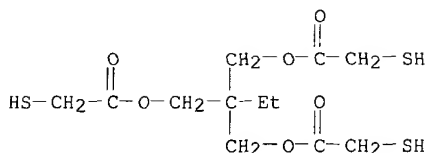
RN 10193-95-0 HCA

CN Acetic acid, mercapto-, 1,4-butanediyl ester (9CI) (CA INDEX NAME)



RN 10193-96-1 HCA

CN Acetic acid, mercapto-, 2-ethyl-2-[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



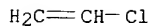
L98 ANSWER 5 OF 12 HCA COPYRIGHT 2003 ACS

- 103:216337 **Thermal stabilization** of vinyl chloride polymers. Gay, Michel (Rhône-Poulenc Specialites Chimiques, Fr.). Fr. Demande FR 2552440 A1 19850329, 46 pp. (French). CODEN: FRXXBL. APPLICATION: FR 1983-15745 19830928.
- AB Mixts. of org. Zn compds., org. compds. of Group IIA metals, and 2-mercaptopropionate esters are **heat stabilizers** for vinyl chloride polymers with little unpleasant odor. Thus, **plasticized PVC** [9002-86-2] (Corvic S 71/102) contg. Zn 2-ethylhexanoate [136-53-8] 1, Ba p-tert-butylbenzoate [10196-68-6] 0.5, and 2-ethylhexyl 2-mercaptopropionate (I) [99253-90-4] 0.8 phr required 71 min to blacken at 180.degree., compared with 63 min with 0.2 phr I and 53 min with no I.
- IC ICM C08K005-00  
ICS C08K005-37; C08J005-00; C08L027-06
- CC 37-6 (Plastics Manufacture and Processing)
- ST **heat stabilizer PVC**; zinc ethylhexanoate **heat stabilizer**; barium butylbenzoate **heat stabilizer**; mercaptopropionate ethylhexyl **heat stabilizer**
- IT **Heat stabilizers**  
(alk. earth carboxylate-zinc carboxylate-mercaptopropionate ester mixts., with low odor, for PVC)
- IT Alkaline earth compounds  
RL: USES (Uses)  
(carboxylates, **heat stabilizers** for PVC)
- IT **9002-86-2**  
RL: USES (Uses)  
(**heat stabilizers** for, alk. earth org. compd.-zinc org. compd.-mercaptopropionate ester mixts. as, with low odor)
- IT 136-53-8 526-26-1 557-04-0 557-05-1 1592-23-0 4980-54-5  
6865-35-6 7529-07-9 10196-68-6 16850-01-4 17369-34-5  
27309-96-2 29367-13-3 52509-84-9 **70537-67-6**  
85892-79-1 99253-90-4 99253-91-5 **99253-92-6**  
**99253-93-7** 99253-94-8 99253-95-9 99253-96-0 99253-97-1  
99253-98-2 99253-99-3 99254-00-9 99254-01-0 99254-02-1  
99254-03-2 **99254-04-3 99254-05-4 99254-06-5**  
**99254-07-6 99254-08-7 99254-09-8**  
**99254-10-1** 99254-11-2 99254-12-3 99254-13-4 99254-14-5  
99254-15-6 99254-16-7 99254-17-8 99254-18-9 **99254-19-0**  
**99254-20-3 99270-47-0**  
RL: MOA (Modifier or additive use); USES (Uses)  
(**heat stabilizers**, for PVC)
- IT **9002-86-2**  
RL: USES (Uses)  
(**heat stabilizers** for, alk. earth org. compd.-zinc org. compd.-mercaptopropionate ester mixts. as, with low odor)
- RN 9002-86-2 HCA
- CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 C1

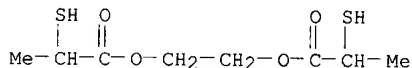


IT 27309-96-2 70537-67-6 99253-92-6  
 99253-93-7 99254-04-3 99254-05-4  
 99254-06-5 99254-07-6 99254-08-7  
 99254-09-8 99254-10-1 99254-19-0  
 99254-20-3 99270-47-0

RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for PVC)

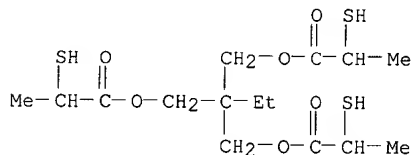
RN 27309-96-2 HCA

CN Propanoic acid, 2-mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



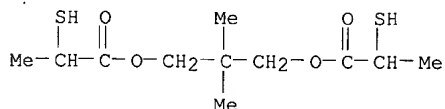
RN 70537-67-6 HCA

CN Propanoic acid, 2-mercapto-, 2-ethyl-2-[(2-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



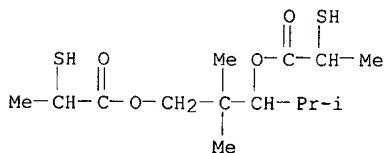
RN 99253-92-6 HCA

CN Propanoic acid, 2-mercapto-, 2,2-dimethyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)



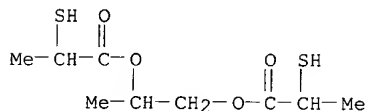
RN 99253-93-7 HCA

CN Propanoic acid, 2-mercapto-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester (9CI) (CA INDEX NAME)



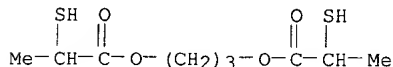
RN 99254-04-3 HCA

CN Propanoic acid, 2-mercapto-, 1-methyl-1,2-ethanediyl ester (9CI) (CA INDEX NAME)



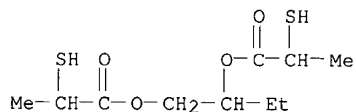
RN 99254-05-4 HCA

CN Propanoic acid, 2-mercapto-, 1,3-propanediyl ester (9CI) (CA INDEX NAME)



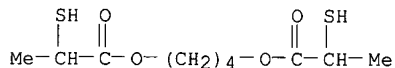
RN 99254-06-5 HCA

CN Propanoic acid, 2-mercapto-, 1-ethyl-1,2-ethanediyl ester (9CI) (CA INDEX NAME)



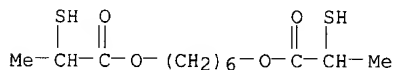
RN 99254-07-6 HCA

CN Propanoic acid, 2-mercapto-, 1,4-butanediyl ester (9CI) (CA INDEX NAME)



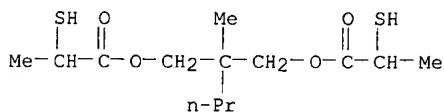
RN 99254-08-7 HCA

CN Propanoic acid, 2-mercapto-, 1,6-hexanediyl ester (9CI) (CA INDEX NAME)



RN 99254-09-8 HCA

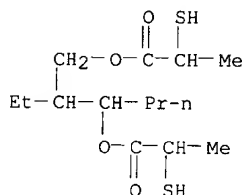
CN Propanoic acid, 2-mercapto-, 2-methyl-2-propyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)



RN 99254-10-1 HCA

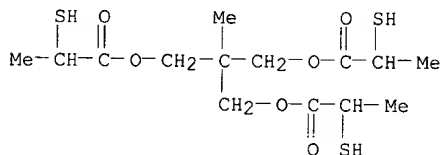
CN Propanoic acid, 2-mercapto-, 2-ethyl-1-propyl-1,3-propanediyl ester (9CI)

(CA INDEX NAME)



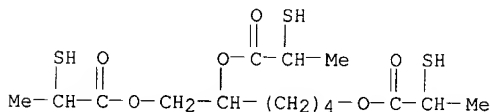
RN 99254-19-0 HCA

CN Propanoic acid, 2-mercapto-, 2-[(2-mercapto-1-oxopropoxy)methyl]-2-methyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)



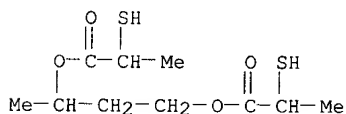
RN 99254-20-3 HCA

CN Propanoic acid, 2-mercapto-, 1,2,6-hexanetriyl ester (9CI) (CA INDEX NAME)



RN 99270-47-0 HCA

CN Propanoic acid, 2-mercapto-, 1-methyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)



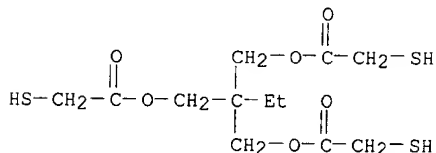
L98 ANSWER 6 OF 12 HCA COPYRIGHT 2003 ACS

101:56557 Bonding dissimilar synthetic polymeric materials. Kwart, Harold; Varadhachary, Seevaram N. (USA). U.S. US 4333987 A 19820608, 9 pp. (English). CODEN: USXXAM. APPLICATION: US 1979-105051 19791219.

AB Adhesion between dissimilar polymers, esp. between vinyl polymers and photocurable polyurethane acrylates, is increased by adding **plasticizers**, nonvolatile, unsatd. compds., and radical initiators to the vinyl polymer and polythiols to the polyurethane and curing the pair in contact. Thus, a gelled PVC [9002-86-2] plastisol foam was printed with a vinyl polymer ink contg. a foaming inhibitor (trimellitic anhydride), covered with 15 mil wet PVC plastisol

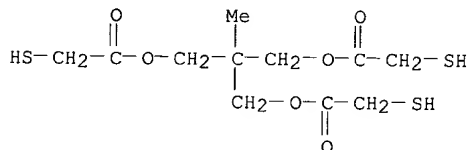
contg. 5.0 phr glycerol diundecenoate [91115-16-1] and 0.3 phr Bz2O2, gelled at 300.degree. F, foamed at 430.degree. F, and coated with 1.5 mil mixt. of UV-curable polyurethane acrylate [dicyclohexylmethane diisocyanate (I) 3, 2-hydroxyethyl acrylate (II) 0.9, and polyoxypropylated pentaerythritol (III) 0.9 equivs.] 26.0, polyurethane acrylate (I 4 and II 2.4 equivs.) 4.4, III (OH no. 374) 4.6 and vinyl acetate 15.0 g contg. 2.5 g pentaerythritol tetrakis(mercptoacetate) [10193-99-4], 1.5 mL benzoin iso-Bu ether, and 5 drops Bu2Sn dilaurate. curing at 10 ft/min by two 200-W Hg lamps resulted in strong, permanent layer bonding.

- IC B05D003-06  
 NCL 428419000  
 CC 42-3 (Coatings, Inks, and Related Products)  
 ST adhesion **PVC** polyurethane acrylate; mercaptoacetate  
 pentaerythritol coating adhesion; glycerol undecenoate coating adhesion  
 IT Urethane polymers, uses and miscellaneous  
 RL: USES (Uses)  
 (acrylates, bonding to **PVC**, polythiol-polyene couplers for)  
 IT Coupling agents  
 (polythiol-polyenes, for photocurable polyurethane acrylates to **PVC**)  
 IT Oils  
 RL: USES (Uses)  
 (drying, couplers, contg. polythiols, for **PVC** to photocurable polyurethane acrylates)  
 IT Coating materials  
 (photocurable, polyurethane acrylates, bonding to **PVC**, polyene-polythiol couplers for)  
 IT Thiols, uses and miscellaneous  
 RL: USES (Uses)  
 (poly-, couplers, contg. polyenes, for **PVC** to photocurable polyurethane acrylates)  
 IT 10193-96-1 10193-98-3 10193-99-4  
 68865-56-5  
 RL: USES (Uses)  
 (couplers, contg. polyenes, for **PVC** to photocurable polyurethane acrylates)  
 IT 105-76-0 91115-16-1  
 RL: USES (Uses)  
 (couplers, contg. polythiols, for **PVC** to photocurable polyurethane acrylates)  
 IT 10193-96-1 10193-98-3 10193-99-4  
 68865-56-5  
 RL: USES (Uses)  
 (couplers, contg. polyenes, for **PVC** to photocurable polyurethane acrylates)  
 RN 10193-96-1 HCA  
 CN Acetic acid, mercapto-, 2-ethyl-2-[[ (mercptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



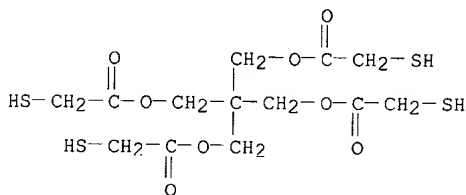
RN 10193-98-3 HCA

CN Acetic acid, mercapto-, 2-[[[(mercaptoacetyl)oxy]methyl]-2-methyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)



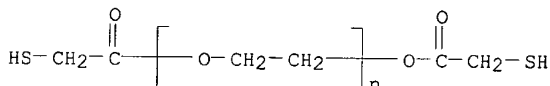
RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[[[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



RN 68865-56-5 HCA

CN Poly(oxy-1,2-ethanediyl), .alpha.-(mercaptoacetyl)-.omega.-[(mercaptoacetyl)oxy]- (9CI) (CA INDEX NAME)



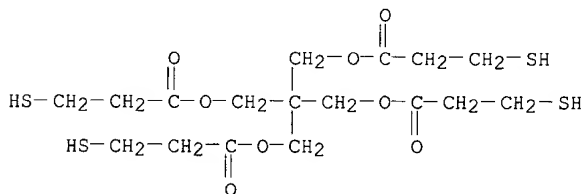
L98 ANSWER 7 OF 12 HCA COPYRIGHT 2003 ACS

99:159565 Studies on treatment and effective utilization of polymer waste. V. Effect of thiol compounds on upgrading of scrap **plasticized** poly(vinyl chloride) hothouse film. Yamamoto, Makoto; Kawamoto, Kiyoshi; Yamaguchi, Tatsuaki (Tokyo Metrop. Ind. Tech. Inst., Tokyo, 115, Japan). Kobunshi Ronbunshu, 40(6), 345-50 (Japanese) 1983. CODEN: KBRBA3. ISSN: 0386-2186.

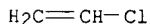
AB Poly(vinyl chloride) (I) [9002-86-2] resin was recovered from waste hothouse film by complete extn. of **plasticizer** with benzene at room temp. A disadvantage of recovered I is its lack of **thermal stability**, and resultant discoloration. Some improvement was obtained when an appropriate amt. of tris(mercaptopropyl) isocyanurate (II) [78366-85-5] was mixed into recovered I. The tensile strength of the material increased with the ratio of II to I. A strength of 59.3 N/mm<sup>2</sup> was obtained when 5% II (based on I) was added. I was crosslinked with II in presence of dicumyl peroxide, but no addnl. improvement of properties resulted. II was a more effective additive for improving reclaimed I properties than 6-dibutylamino-1,3,5-triazine-2,4-dithiol [29529-99-5], pentaerythritol tetrakis(mercaptopropionate) [7575-23-7], isooctyl thioglycolate [25103-09-7], or diphenylthiourea [102-08-9].

CC 38-3 (Plastics Fabrication and Uses)

- Section cross-reference(s): 60
- ST **PVC** waste recovery upgrading; **heat stabilizer**  
thiol recovered **PVC**; discoloration inhibitor thiol recovered  
RVC; mercaptopropyl isocyanurate stabilizer recovered **PVC**
- IT Waste solids  
(**PVC**, recovered, thiol **heat stabilizers**  
for)
- IT Thiols, uses and miscellaneous  
RL: MOA (Modifier or additive use); USES (Uses)  
(**heat stabilizers**, for recovered **PVC**)
- IT **Heat stabilizers**  
(thiols, for **PVC** recovered from waste hothouse film)
- IT Discoloration prevention  
(agents, thiols, for **PVC** recovered from waste hothouse film)
- IT Polymer **degradation**  
(**thermal**, of recovered **PVC**, thiol stabilizers  
effect on)
- IT 102-08-9 7575-23-7 25103-09-7 29529-99-5 78366-85-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(**heat stabilizers**, for recovered **PVC**)
- IT 9002-86-2  
RL: USES (Uses)  
(waste, stabilizers for recovered, thiols as)
- IT 7575-23-7  
RL: MOA (Modifier or additive use); USES (Uses)  
(**heat stabilizers**, for recovered **PVC**)
- RN 7575-23-7 HCA
- CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-  
propanediyl ester (9CI) (CA INDEX NAME)



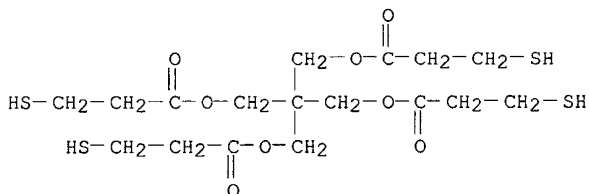
- IT 9002-86-2  
RL: USES (Uses)  
(waste, stabilizers for recovered, thiols as)
- RN 9002-86-2 HCA
- CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 75-01-4
- CMF C2 H3 Cl



L98 ANSWER 8 OF 12 HCA COPYRIGHT 2003 ACS  
 98:216385 Reclamation of waste **PVC** film in agriculture. Yamamoto,  
 Makoto; Yamaguchi, Tatsuaki (Org. Chem. Div., Ind. Eng. Cent., Tokyo, 115,  
 Japan). Enbi to Porima, 23(1), 7-11 (Japanese) 1983. CODEN: EBTPBO.

ISSN: 0367-021X.

- AB The yield of reclaimed DOP [117-81-7] from waste soft PVC was 85.9, 93.6 and 86% for extn. at 20-30 .degree.C by benzene, toluene or 40:60 vol. MEK-MeOH mixt., resp. Acid value of the recovered DOP was lowered from 6.38 to 0.78 by treatment with active carbon and acidic alumina. Tensile strength of the residual PVC [9002-86-2] increased from 53.8 to 57.2 MPa by crosslinking with pentaerythritol tetra(3-mercaptopropionate) [7575-23-7]. The value increased to 58.0-60.0 MPa by using a coagent such as benzoyl peroxide [94-36-0]. Crosslinking reactions of PVC using typical thiol compds. are reviewed with 19 refs.
- CC 37-1 (Plastics Manufacture and Processing)
- ST DOP recovery waste PVC; PVC waste crosslinking
- IT **Plasticizers**  
(DOP, recovery of, from waste PVC)
- IT Crosslinking catalysts  
(benzoyl peroxide, for PVC)
- IT Crosslinking agents  
(pentaerythritol tetra(mercaptopropionate), for waste PVC)
- IT **7575-23-7**  
RL: MOA (Modifier or additive use); USES (Uses)  
(crosslinking agents, for waste PVC)
- IT 94-36-0, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(crosslinking catalysts, for PVC)
- IT 9002-86-2P  
RL: PREP (Preparation)  
(**plasticizer** recovery from waste)
- IT 117-81-7P  
RL: PREP (Preparation)  
(recovery of, from waste PVC)
- IT **7575-23-7**  
RL: MOA (Modifier or additive use); USES (Uses)  
(crosslinking agents, for waste PVC)
- RN 7575-23-7 HCA
- CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



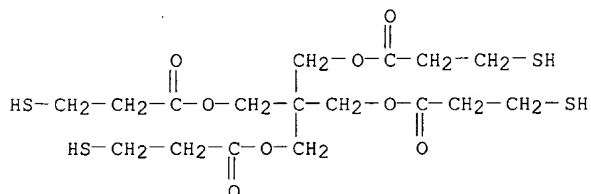
L98 ANSWER 9 OF 12 HCA COPYRIGHT 2003 ACS

96:144070 Recovery of **plasticizer** and crosslinked poly(vinyl chloride) (PVC) from waste agricultural soft film. Yamaguchi, Tatsuki; Yamamoto, Makoto; Shimada, Yoshifusa (Dep. Ind. Chem., Chiba Inst. Technol., Narashino, 275, Japan). Kobunshi Ronbunshu, 39(1), 29-34 (Japanese) 1982. CODEN: KBRBA3. ISSN: 0386-2186.

- AB More than 90 wt.% bis(2-ethylhexyl) phthalate (I) [117-81-7], which remained intact in waste agricultural **plasticized PVC** [9002-86-2] after 1-yr usage, (about 35 wt% of the original value) was recovered by dissoln.-repptn. with DMF and MeOH. A 60:40 (vol.%)

MeOH-MeCOEt mixt. was also effective for rapid extn. of I at room temp. The recovered **PVC** was converted to a crosslinked polymer by treatment with pentaerythritol tetrakis(3-mercaptopropionate) [ **7575-23-7**] in the presence of Bz2O2. The **thermal stability** of the crosslinked **PVC** was better than that of the virgin **PVC**, and their tensile strengths were almost identical.

- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 19
- ST **PVC** recovery agricultural film; DOP recovery agricultural film; ethylhexyl phthalate recovery **PVC** film; phthalate ethylhexyl **PVC** film; waste **PVC** recovery film; **plasticizer** phthalate recovery **PVC** film
- IT Clays, uses and miscellaneous  
Kieselguhr  
RL: USES (Uses)  
(adsorbents, in recovery of DOP from waste agricultural **PVC** film, discoloration in relation to)
- IT Waste solids  
(agricultural **PVC** film, recovery and recrosslinking of)
- IT **Plasticizers**  
(bis(ethylhexyl) phthalate, recovery of, from waste **PVC** film)
- IT Adsorbents  
(in DOP recovery from waste agricultural **PVC** film)
- IT 1344-28-1, uses and miscellaneous 7440-44-0, uses and miscellaneous 14807-96-6, uses and miscellaneous  
RL: USES (Uses)  
(adsorbents, in recovery of DOP from waste agricultural **PVC** film, discoloration in relation to)
- IT **7575-23-7**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(crosslinking by, of **PVC** recovered from waste agricultural film)
- IT 117-81-7P  
RL: PREP (Preparation)  
(recovery of, from waste agricultural **PVC** film, by dissoln.-repptn.)
- IT **7575-23-7**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(crosslinking by, of **PVC** recovered from waste agricultural film)
- RN 7575-23-7 HCA
- CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

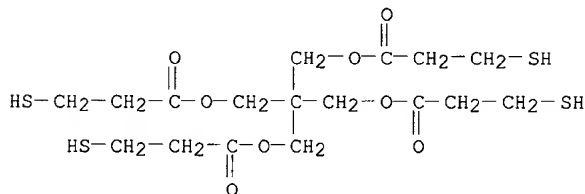


198 ANSWER 10 OF 12 HCA COPYRIGHT 2003 ACS

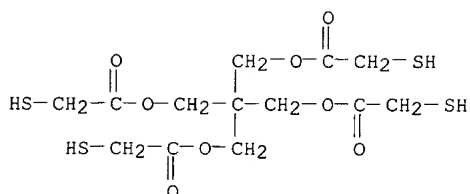
77:35605 Shapable **plasticized** thermoplastic compositions.

Davenport, Noel E. (Grace, W. R., and Co.). Brit. GB 1270114 19720412, 5

- pp. (English). CODEN: BRXXAA. APPLICATION: GB 1969-8001 19690213.
- AB Thermoplastic compns., useful as protective or decorative coatings and films, were prepd. from poly(vinyl chloride) (I) [9002-86-2] or vinyl chloride-vinyl acetate copolymer [9003-22-9] and a polymerizable **plasticizer**, e.g. diallyl phthalate (II) [131-17-9], and a polythiol, e.g. pentaerythritol mercaptopropionate (III) [7575-23-7]. Thus, a plastisol contg. I 100, II 50, III 45, basic lead carbonate 5, benzophenone photosensitizer 0.5, and Azosol Black MA 0.4 parts was spread on a steel plate to form a 0.51 mm thick film which was fluxed at 200.deg. for 3 min. The fluxed film was flexible, but on irradsn. with uv light for 10 min became hard, tough, and abrasion-resistant. Pentaerythritol tetrakis(thioglycollate) [10193-99-4] and an allyl-terminated polyester were similarly used.
- IC C08F; C09D; B44D
- CC 36-6 (Plastics Manufacture and Processing)
- ST PVC coating **plasticizer**; allyl **plasticizer**  
PVC; thiol curing PVC; polythiol curing PVC
- IT **Plasticizers**  
(allyl group-contg., in chloroethylene polymer coatings)
- IT Polyesters, uses and miscellaneous  
RL: USES (Uses)  
(allyl-terminated, **plasticizers**, in chloroethylene polymer coatings)
- IT Coating materials  
(chloroethylene polymers, contg. polymerisable **plasticizers** and polythiols)
- IT 9002-86-2 9003-22-9  
RL: TEM (Technical or engineered material use); USES (Uses)  
(coatings, contg. polymerisable **plasticizers** and polythiols)
- IT 7575-23-7 10193-99-4  
RL: USES (Uses)  
(in chloroethylene polymer coatings)
- IT 131-17-9  
RL: USES (Uses)  
(**plasticizers**, for chloroethylene polymer coatings)
- IT 7575-23-7 10193-99-4  
RL: USES (Uses)  
(in chloroethylene polymer coatings)
- RN 7575-23-7 HCA
- CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



- RN 10193-99-4 HCA
- CN Acetic acid, mercapto-, 2,2-bis[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L98 ANSWER 11 OF 12 HCA COPYRIGHT 2003 ACS

77:20806 Curable thermoplastic polymer compositions contain a **plasticizer**. Davenport, Noel E. U.S. US 3652733 19720328, 3 pp. (English). CODEN: USXXAM. APPLICATION: US 1970-10032 19700209.

AB Poly(vinyl chloride) (I) [9002-86-2] and vinyl chloride-vinyl acetate copolymer [9003-22-9] were mixed with a polymerizable **plasticizer** such as pentaerythritol mercaptopropionate (II) [7575-23-7] or pentaerythritol tetrakis thioglycollate [10193-99-4] to give curable compns. useful as coatings. Thus, a plastisol, prepd. from Breon 121, diallyl phthalate, II (45%), basic Pb carbonate, benzophenone, and Azosol Black MA, was applied on a steel plate, fluxed at 200.deg., and exposed to uv light to give hard and abrasion resistant film.

IC C08F

NCL 260884000

CC 36-6 (Plastics Manufacture and Processing)

ST **PVC** plastisol; UV crosslinking **PVC**; coating **PVC**; pentaerythritol mercaptopropionate **plasticizer**; thioglycollate **plasticizer**; polymerizable **plasticizer** **PVC**

IT **Plasticizers**

(mercapto acid pentaerythritol esters as polymerizable, for vinyl chloride polymer coatings for steel)

IT Coating materials

(vinyl chloride polymers, contg. polymerizable **plasticizers**, for steel)

IT 9002-86-2 9003-22-9

RL: TEM (Technical or engineered material use); USES (Uses) (coatings, contg. polymerizable **plasticizers**, for steel)

IT 7575-23-7 10193-99-4

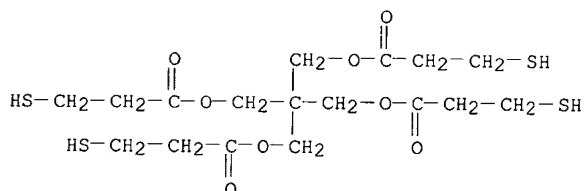
RL: MOA (Modifier or additive use); USES (Uses) (**plasticizers**, polymerizable, for vinyl chloride polymers as coatings for steel)

IT 7575-23-7 10193-99-4

RL: MOA (Modifier or additive use); USES (Uses) (**plasticizers**, polymerizable, for vinyl chloride polymers as coatings for steel)

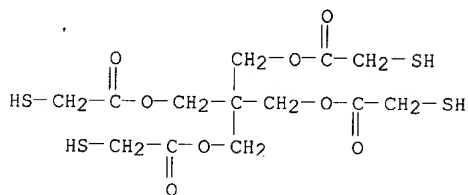
RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[[ (mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L98 ANSWER 12 OF 12 HCA COPYRIGHT 2003 ACS

75:28230 Lithographic plate. Yeshin, Leon (Grace, W. R., and Co.). Fr. Demande FR 2028302 19701113, 36 pp. (French). CODEN: FRXXBL. PRIORITY: US 19690114.

AB Lithographic plates were made using a plastic or Al support coated with a photohardenable layer contg. a vinyl polymer and 2-98 parts polyene, 2-98 parts polythiol and 0.005-50 parts accelerator/100 parts polyene and polythiol. An image formed on uv irradiation through a diapos. or stencil, and the heated compn. contained insol., pliant exposed areas, and **plasticized** hydrophilic or oleophilic unexposed ones. Thus, a polymer prep. from a polyester glycol treated with allyl isocyanate in the presence of dibutyl tin dilaurate was mixed with pentaerythritol tetrakis(.beta.-mercaptopropionate), benzophenone photoinitiator and PVC, heated, and coated on Al. Similar coating preps. (85 given) contain other mercaptans and prep. polymers, poly(vinylidene chloride) in place of PVC, and cyclohexanone, acetone or MeEt ketone photoinitiator, coated, e.g. on Mylar.

IC G03F; B41N; C08F

CC 74 (Radiation Chemistry, Photochemistry, and Photographic Processes)

IT 7575-23-7

RL: USES (Uses)

(photohardenable compns. contg., for lithographic plate)

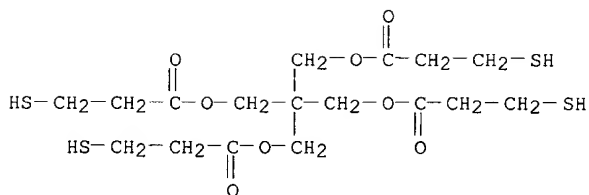
IT 7575-23-7

RL: USES (Uses)

(photohardenable compns. contg., for lithographic plate)

RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



=> d L99 1,5,10,20,25,30,35,40-41 cbib abs hitstr

L99 ANSWER 1 OF 41 HCA COPYRIGHT 2003 ACS

137:80395 Heavy metal-free **heat stabilizer** compositions for water-based inks or other **PVC** resins with improved adhesion. Duvall, Tod C.; Carpenter, Jeffrey L. (USA). U.S. Pat. Appl. Publ. US 2002086920 A1 20020704, 15 pp., Cont.-in-part of U.S. Ser. No. 133,605. (English). CODEN: USXXCO. APPLICATION: US 1999-320304 19990526. PRIORITY: US 1995-435413 19950510; US 1996-597093 19960223; US 1997-890613 19970709; US 1998-48492 19980326; US 1998-133605 19980813.

AB The compns. comprise a combination of a blocked mercaptan and a zinc salt of oxidized polyethylene (a zinc ionomer), wherein the oxidized polyethylene is split out from the ionomer to act as an adhesion promoter for aq. inks and paints, and the residual zinc carboxylate functions as a co-stabilizer with the mercaptan in the compn. One example of the mercaptans was 2-S-(tetrahydropyranyl)thioethyl caprate.

IT 9002-86-2, **PVC**

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(**heat stabilizer** compns. for water-based inks or **PVC** resins with improved adhesion)

RN 9002-86-2 HCA

CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 C1

H<sub>2</sub>C=CH-Cl

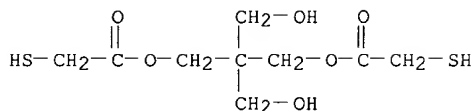
IT 107571-76-6P, Pentaerythritol bis(2-mercaptoacetate)

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; **heat stabilizer** compns. for water-based inks or **PVC** resins with improved adhesion)

RN 107571-76-6 HCA

CN Acetic acid, mercapto-, 2,2-bis(hydroxymethyl)-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L99 ANSWER 5 OF 41 HCA COPYRIGHT 2003 ACS

118:125812 Heat- and discoloration-resistant chlorinated PVC compositions. Oomoto, Masanobu; Kawamoto, Kazuo; Kakei, Hiroshi (Sekisui Chemical Co., Ltd., Japan; Tokuyama Soda Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 04198348 A2 19920717 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-327331 19901127.

AB The title comps. comprise chlorinated PVC contg. 0.05-5 phr alkyltin compds. and 0.05-5 phr S- and/or Cl-contg. alkyltin compds. and/or metal halides. Thus, a molding prepd. by molding HA 15F contg. MBS (Metablen C 150S) 10, Hiwax 4202E, dioctyltin sulfide 2, and monoocetyltn(isooctylmercaptoacetate) chloride (I) 1 phr at 180.degree. for 7 min had yellowness 33, vs. 43 without I.

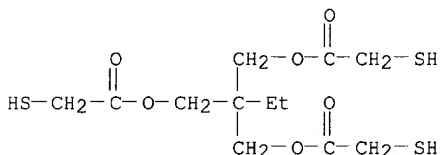
IT 10193-96-1 10193-99-4, Pentaerythritol tetrakis(mercaptoacetate) 22504-50-3 92140-97-1 145821-74-5

RL: USES (Uses)

(chlorinated PVC contg. alkyltin compds. and, heat-resistant)

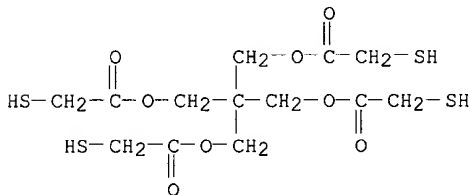
RN 10193-96-1 HCA

CN Acetic acid, mercapto-, 2-ethyl-2-[[mercaptoacetyl]oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



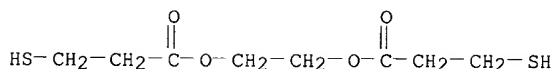
RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[[mercaptoacetyl]oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



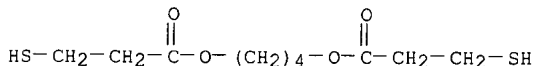
RN 22504-50-3 HCA

CN Propanoic acid, 3-mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



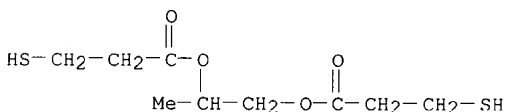
RN 92140-97-1 HCA

CN Propanoic acid, 3-mercapto-, 1,4-butanediyl ester (9CI) (CA INDEX NAME)



RN 145821-74-5 HCA

CN Propanoic acid, 3-mercapto-, 1-methyl-1,2-ethanediyl ester (9CI) (CA INDEX NAME)



L99 ANSWER 10 OF 41 HCA COPYRIGHT 2003 ACS

114:144830 Thermal stabilization of chlorinated **PVC**. Adachi, Terufumi; Kakei, Hiroshi; Kawamoto, Kazuo (Tokuyama Sekisui Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 02269756 A2 19901105 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-92228 19890411.

AB Chlorinated **PVC** is stabilized with mixts. of alkyltin chlorides and the thiols of specified structure. Thus, chlorinated **PVC** contg. 1.4 phr (C8H17)2Sn(Cl)SCH2CO2C8H17-iso and 0.6 phr HOCH2CH2SH had good stability at 190.degree. for 140 min.

IT 9002-86-2D, **PVC**, chlorinated

RL: USES (Uses)

(**heat stabilizers** for, alkyltin chlorides and thiols as)

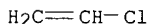
RN 9002-86-2 HCA

CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 Cl



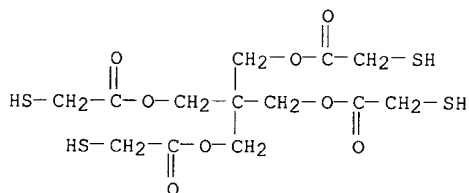
IT 10193-99-4

RL: MOA (Modifier or additive use); USES (Uses)

(**heat stabilizers**, for chlorinated **PVC**)

RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L99 ANSWER 20 OF 41 HCA COPYRIGHT 2003 ACS

98:126738 Mechanism of poly(vinyl chloride) stabilization by mixtures of zinc and calcium carboxylates with various complexing agents. Troitskii, B. B.; Troitskaya, L. S.; Denisova, V. N. (Inst. Chem., Gorskii, USSR). European Polymer Journal, 18(12), 1093-101 (English) 1982. CODEN: EUPJAG. ISSN: 0014-3057.

AB The effects were studied at 180.degree. for Zn and Ca carboxylates, polyols, and other O-contg. compds., N- and S-contg. compds., and of mixts. of Zn-Ca carboxylates, Zn carboxylate-complexing agent, Ca carboxylate-complexing agent, and of Zn carboxylate-Ca carboxylate-complexing agent upon the rate of dehydrochlorination and crosslinking and on the absorption spectra of PVC during degrdn. in vacuum. The interaction of the stabilizers with 2-chlorobutane (a model for normal units of PVC [9002-86-2]) was studied at 180.degree.. In the thermal degrdn. of PVC, Zn carboxylates give synergistic mixts. with compds. having -OH, -SH, or -NH groups. In the thermal degrdn. of PVC in the presence of mixts. of Zn carboxylates with polyols, there are exchanges between Cl-contg. groups of PVC and COO- groups of salt and alc. residue. Zn salts also catalyze the interaction of polyols with double (particularly conjugated double) bonds of degraded PVC. The investigated compds. do not form synergistic mixts. with Ca carboxylates. The triple mixts. of Zn and Ca carboxylates with complexing agents are more effective stabilizers of PVC than the binary mixts. Zn carboxylate-Ca carboxylate and Zn carboxylate-complexing agent. The mechanism of synergistic interaction in PVC stabilization by these mixts. is discussed.

IT 9002-86-2

RL: PRP (Properties)

(degrdn. of, thermal, kinetics of, effect of stabilizers on)

RN 9002-86-2 HCA

CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 Cl

H<sub>2</sub>C=CH-Cl

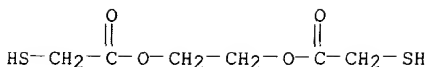
IT 123-81-9

RL: USES (Uses)

(stabilizers, thermal degrdn. of PVC in presence of, kinetics of)

RN 123-81-9 HCA

CN Acetic acid, mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



L99 ANSWER 25 OF 41 HCA COPYRIGHT 2003 ACS

97:56732 Improved stabilizers for vinyl halide resins.. Hulyalkar, Ramchandra K.; Baum, Gerald A.; Hotchandani, Kanayo (Dart and Kraft, Inc., USA).

Belg. BE 891693 A1 19820430, 19 pp. (French). CODEN: BEXXAL.

APPLICATION: BE 1982-206989 19820105. PRIORITY: US 1981-232108 19810206.

AB An ethoxylated organophosphate ester such as Gafac RS 410 [9046-01-9] or Gafac RE 610 [51811-79-1] is mixed with a liq. compd. contg. S and Sb, such as Sb(SCH<sub>2</sub>CO<sub>2</sub>R)<sub>3</sub> (R = isoocetyl) (I) [27288-44-4], to improve the hydrolysis resistance of the liq. compd. The liq. mixts. were used as **heat stabilizers for PVC [9002-86-2]** and similar resins. Thus, a 98:2 I-Gafac RS 410 mixt. was resistant to hydrolysis during 108 min while humid air was passed through the liq. mixt. at 127.degree.. PVC contg. 0.8% of the mixt. became slightly colored during 20 min at 190.5.degree. and became brown-black during 45 min.

IT **9002-86-2**

RL: USES (Uses)

(**heat stabilizers** for, antimony

mercaptide-ethoxylated organophosphate ester mixts. as)

RN 9002-86-2 HCA

CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 Cl



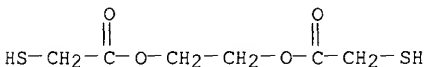
IT **82530-62-9**

RL: MOA (Modifier or additive use); USES (Uses)

(**heat stabilizers**, for PVC, hydrolysis inhibitors for)

RN 82530-62-9 HCA

CN Acetic acid, mercapto-, 1,2-ethanediy l ester, antimony(3+) salt { 3:1} (9CI) (CA INDEX NAME)



●1/3 Sb(III)

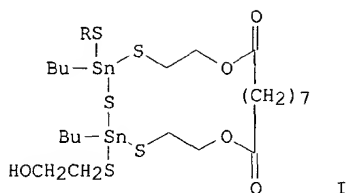
L99 ANSWER 30 OF 41 HCA COPYRIGHT 2003 ACS

94:47482 Organotin compounds and resins or polymers stabilized with them.

Dworking, Robert Dally; Larkin, William Albert (M and T Chemicals Inc., USA). Eur. Pat. Appl. EP 11456 19800528, 101 pp. (English). CODEN:

EPXXDW. APPLICATION: EP 1979-302520 19791109.

GI



AB Approx. 20 organotin sulfide esters were prepd. by various procedures. Thus, 0.4 mol BuSnCl<sub>3</sub>, 0.8 mol NH<sub>4</sub>OH, 0.2 mol HSCH<sub>2</sub>CH<sub>2</sub>OH, 0.2 mol Me(CH<sub>2</sub>)<sub>11</sub>SH, 0.2 mol HSCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>C(CH<sub>2</sub>)<sub>7</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>SH, and 233 mol H<sub>2</sub>O, was heated to 70.degree. 0.5 h by 0.2 mol Na<sub>2</sub>S addn., the mixt. heated at 75.degree. 0.5 h, and the pH adjusted to 7 with NH<sub>4</sub>OH to give 88 g I (R = n-dodecyl). Also prepd. were [(BuSn(S)SCH<sub>2</sub>CH<sub>2</sub>O)]<sub>4</sub>M (M = Si, Ti), [(BuSn(S)SCH<sub>2</sub>CH<sub>2</sub>O)]<sub>3</sub>M (M = B, P, Al), and I (R = CH<sub>2</sub>CO<sub>2</sub>(CH<sub>2</sub>)<sub>5</sub>CHMe<sub>2</sub>). The compds. prepd. were useful as **heat stabilizers** for halogenated polymers such as PVC.

IT 9002-86-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(organotin compds. as stabilizers for)

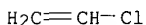
RN 9002-86-2 HCA

CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 Cl

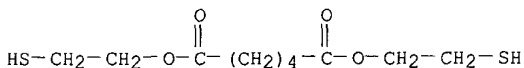


IT 10194-00-0 76192-65-9

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with butyltin chlorides)

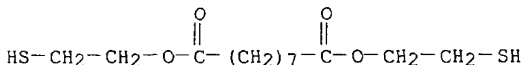
RN 10194-00-0 HCA

CN Hexanedioic acid, bis(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



RN 76192-65-9 HCA

CN Nonanedioic acid, bis(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



L99 ANSWER 35 OF 41 HCA COPYRIGHT 2003 ACS

86:56234 Organotin compounds. Coates, Harold; Collins, John Desmond;

Siddiqui, Iftikhar H. (Albright and Wilson Ltd., UK). Brit. GB 1439753 19760616, 15 pp. Division of Brit. 1,439,752. (English). CODEN: BRXXAA. APPLICATION: GB 1973-22460 19730510.

- AB Improved stabilization of PVC against thermal decompn. was obtained using low Sn content bis[(alkyloxycarbonyl)ethylthio]dibutyl- and -diocetyl tin deriv. stabilizers. E.g., HS(CH<sub>2</sub>)<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>C(CH<sub>2</sub>O<sub>2</sub>CCl<sub>11</sub>H<sub>23</sub>)<sub>3</sub> [60998-31-4], prepd. by condensing pentaerythritol [115-77-5], lauric acid [143-07-7], and HS(CH<sub>2</sub>)CO<sub>2</sub>H [107-96-0] together, was treated with Bu<sub>2</sub>SnO [818-08-6] to give Bu<sub>2</sub>Sn[S(CH<sub>2</sub>)<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>C(CH<sub>2</sub>O<sub>2</sub>CCl<sub>11</sub>H<sub>23</sub>)<sub>3</sub>]<sub>2</sub> (I) [60998-27-8]. A rigid sample of Corvic D55/9 contg. 1.16 parts I/100 parts resin had Gardner Scale color 6 after 10 min at 190.degree. compared with a color 7 for a conventional Sn-stabilized PVC (Mellite 31C) contg. an equiv. amt. of stabilizer. Five other stabilizers were prepd.

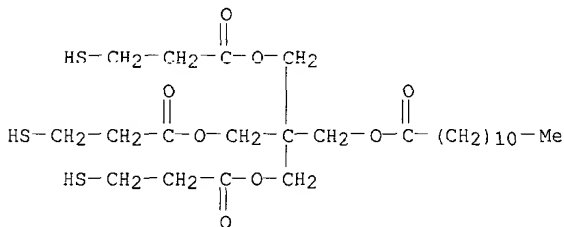
IT 45312-48-9P

RL: PREP (Preparation)

(prepn. and condensation reaction with dodecylaldehyde)

RN 45312-48-9 HCA

CN Dodecanoic acid, 3-(3-mercapto-1-oxopropoxy)-2,2-bis[(3-mercapto-1-oxopropoxy)methyl]propyl ester (9CI) (CA INDEX NAME)



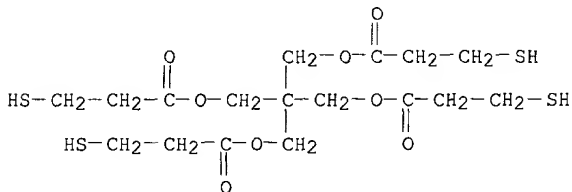
IT 7575-23-7P

RL: PREP (Preparation)

(prepn. and condensation reaction with salicylaldehyde)

RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



IT 9002-86-2

RL: USES (Uses)

(stabilizers for, bis[(alkoxycarbonyl)ethylthio]dibutyltin derivs. as)

RN 9002-86-2 HCA

CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 C1

 $H_2C=CH-C1$ 

L99 ANSWER 40 OF 41 HCA COPYRIGHT 2003 ACS

71:72073 Pentaerythritol mercaptopropionate-modified vinyl chloride polymers. Hwa, Jesse C. H. (Stauffer Chemical Co.). S. African ZA 6805047 19690124, 30 pp. (English). CODEN: SFXXAB. PRIORITY: US 19670901.

AB Vinyl halide polymers contg. a polymercaptan (I) are prepd., which have exceptional thermal stability and low fluxing or flowing characteristics to allow for easier polymer processing without sacrificing phys. properties. The modified vinyl halide polymers have excellent solvent soly. and can be used as a soln. coating compn., which have increased adhesion to a substrate without sacrificing their phys. properties. Thus, a mixt. of vinyl chloride 100, water 230, I 0.3 [contg. 35% pentaerythritol tetrakis(3-mercaptopropionate) and 35% pentaerythritoltris(3-mercaptopropionate)], hydroxymethyl cellulose 0.167, and azobisisobutyronitrile 0.067 part was suspension polymd. for 14 hrs. at 44.degree. to give 1.89 relative viscosity (1 wt. % in cyclohexanone, 30.degree.) and a 95-100% conversion. A vinyl chloride polymer 100 contg. I 0.3, stabilizer 3, and lubricant (Ca stearate) 0.5 part had a fusion torque rheometer reading rating of noncatastrophic (polymer degrades at a rate of 0-25 m.-g./min.) and 8010 tensile strength, compared to semicatastrophic (polymers degrade at a rate of 25-100 m.-g./min.) and 7440 for a conventional low-mol.-wt. poly-(vinyl chloride) homopolymer, with the same amts. of the stabilizer lubricant but without I.

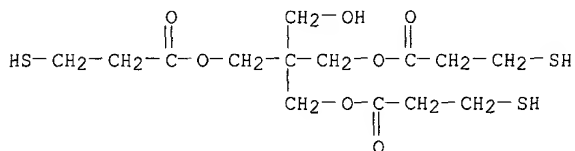
IT 7539-04-0 7575-23-7

RL: USES (Uses)

(polymn. of vinyl chloride in presence of, for coatings)

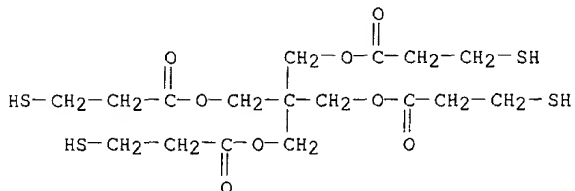
RN 7539-04-0 HCA

CN Propanoic acid, 3-mercapto-, 2-(hydroxymethyl)-2-[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



IT 9002-86-2P, preparation

RL: PREP (Preparation)  
 (presence of pentaerythritol mercaptopropionate, for coatings)  
 RN 9002-86-2 HCA  
 CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4  
 CMF C2 H3 C1

H<sub>2</sub>C=CH-C1

L99 ANSWER 41 OF 41 HCA COPYRIGHT 2003 ACS

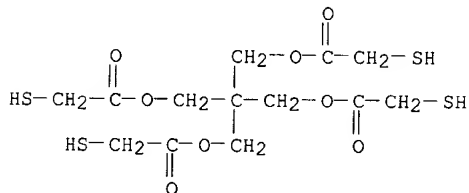
57:76105 Original Reference No. 57:15152e-h Organotin sulfur compounds.  
 Mack, Gerry P. (Metal & Thermit Corp.). GB 9003068 19620809, 4 pp.  
 (Unavailable). PRIORITY: US 19600401.

AB Organotin S compds., excellent stabilizers for the prevention of  
**heat degradation** in vinyl chloride-contg. resins, are  
 prepd. by treating a diorganotin oxide (or its corresponding dihydroxide,  
 dichloride, or dibromide) of the formula R<sub>2</sub>SnO, where R is a phenyl,  
 alkyl, or aralkyl group contg. not more than 12 C atoms, with  
 pentaerythritol tetramercaptoacetate or pentaerythritol  
 tetra-.beta.-mereaptopropionate (or their sodium salts) in a molar ratio  
 of 2 pts. of the oxide to 1 of the ester. The product is believed to have  
 the formula [R<sub>2</sub>Sn]2[C(CH<sub>2</sub>OCO R'S)4] where R' is a methylene or an ethylene  
 group. The reaction is usually carried out in an inert liquid, such as  
 toluene, acetone, benzene, water, etc. Thus, 4.8 moles dibutyltin oxide is  
 added to 2.4 moles pentaerythritol tetrakis(mercaptopoacetate) in 8000 ml.  
 toluene at 55.degree.. The mixt. is then heated to reflux and the water  
 sepd. The reaction product ppts. as a white solid. This product is an  
 excellent stabilizer for **polyvinyl chloride** resins  
 when present in amts. of 0.5 to 2.5 parts/100 parts of resin.

IT **10193-99-4**, Pentaerythritol, tetrakis(mercaptopoacetate)  
 (reaction products with dialkyloxotin derivs.)

RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[[(mercaptopoacetyl)oxy]methyl]-1,3-  
 propanediyl ester (9CI) (CA INDEX NAME)



CMF C2 H3 C1

 $H_2C=CH-C1$ 

L99 ANSWER 40 OF 41 HCA COPYRIGHT 2003 ACS

71:72073 Pentaerythritol mercaptopropionate-modified vinyl chloride polymers. Hwa, Jesse C. H. (Stauffer Chemical Co.). S. African ZA 6805047 19690124, 30 pp. (English). CODEN: SFXAB. PRIORITY: US 19670901.

AB Vinyl halide polymers contg. a polymercaptan (I) are prepd., which have exceptional thermal stability and low fluxing or flowing characteristics to allow for easier polymer processing without sacrificing phys. properties. The modified vinyl halide polymers have excellent solvent soly. and can be used as a soln. coating compn., which have increased adhesion to a substrate without sacrificing their phys. properties. Thus, a mixt. of vinyl chloride 100, water 230, I 0.3 [contg. 35% pentaerythritol tetrakis(3-mercaptopropionate) and 35% pentaerythritoltris(3-mercaptopropionate)], hydroxymethyl cellulose 0.167, and azobisisobutyronitrile 0.067 part was suspension polymd. for 14 hrs. at 44.degree. to give 1.89 relative viscosity (1 wt. % in cyclohexanone, 30.degree.) and a 95-100% conversion. A vinyl chloride polymer 100 contg. I 0.3, stabilizer 3, and lubricant (Ca stearate) 0.5 part had a fusion torque rheometer reading rating of noncatastrophic (polymer degrades at a rate of 0-25 m.-g./min.) and 8010 tensile strength, compared to semicatastrophic (polymers degrade at a rate of 25-100 m.-g./min.) and 7440 for a conventional low-mol.-wt. poly-(vinyl chloride) homopolymer, with the same amts. of the stabilizer lubricant but without I.

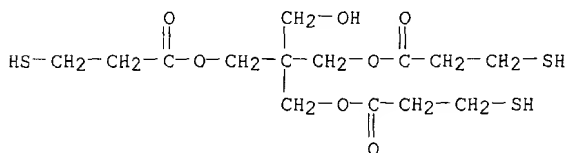
IT 7539-04-0 7575-23-7

RL: USES (Uses)

(polymn. of vinyl chloride in presence of, for coatings)

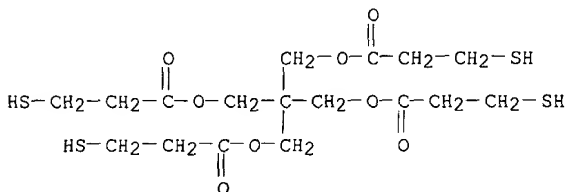
RN 7539-04-0 HCA

CN Propanoic acid, 3-mercapto-, 2-(hydroxymethyl)-2-[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



IT 9002-86-2P, preparation

RL: PREP (Preparation)

(presence of pentaerythritol mercaptopropionate, for coatings)

RN 9002-86-2 HCA

CN Ethene, chloro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-01-4

CMF C2 H3 C1

H<sub>2</sub>C=CH-Cl

L99 ANSWER 41 OF 41 HCA COPYRIGHT 2003 ACS

57:76105 Original Reference No. 57:15152e-h Organotin sulfur compounds.

Mack, Gerry P. (Metal & Thermit Corp.). GB 9003068 19620809, 4 pp.

(Unavailable). PRIORITY: US 19600401.

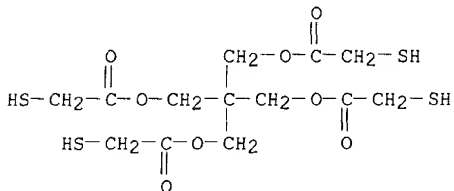
AB Organotin S compds., excellent stabilizers for the prevention of **heat degradation** in vinyl chloride-contg. resins, are prepd. by treating a diorganotin oxide (or its corresponding dihydroxide, dichloride, or dibromide) of the formula R<sub>2</sub>SnO, where R is a phenyl, alkyl, or aralkyl group contg. not more than 12 C atoms, with pentaerythritol tetramercaptoacetate or pentaerythritol tetra-.beta.-mercaptopropionate (or their sodium salts) in a molar ratio of 2 pts. of the oxide to 1 of the ester. The product is believed to have the formula [R<sub>2</sub>Sn]2[C(CH<sub>2</sub>OCO R'S)4] where R' is a methylene or an ethylene group. The reaction is usually carried out in an inert liquid, such as toluene, acetone, benzene, water, etc. Thus, 4.8 moles dibutyltin oxide is added to 2.4 moles pentaerythritol tetrakis(mercaptopropionate) in 8000 ml. toluene at 55.degree.. The mixt. is then heated to reflux and the water sepd. The reaction product ppts. as a white solid. This product is an excellent stabilizer for **polyvinyl chloride** resins when present in amts. of 0.5 to 2.5 parts/100 parts of resin.

IT 10193-99-4, Pentaerythritol, tetrakis(mercaptopropionate)

(reaction products with dialkyltin derivs.)

RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[[[(mercaptopropionyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



=> d L117 1 cbib abs hitind hitstr

L117 ANSWER 1 OF 1 HCA COPYRIGHT 2003 ACS

110:174486 Process for stabilizing mixtures based on halogenated polymers.

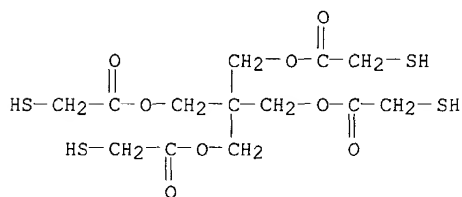
Kornbaum, Simon (Fr.). PCT Int. Appl. WO 8810282 A1 19881229, 23 pp.

DESIGNATED STATES: W: AU, BG, BR, DK, FI, HU, JP, KR, MC, NO, RO, SU, US;

RW: AT, BE, BJ, CF, CG, CH, CM, DE, FR, GA, GB, IT, LU, ML, MR, NL, SE,

- SN, TD, TG. (French). CODEN: PIXXD2. APPLICATION: WO 1988-FR332 19880622. PRIORITY: FR 1987-9279 19870626.
- AB In the title process, .gtoreq.1 org. compds. contg. .gtoreq.1 SH groups and a small amt. of .gtoreq.1 halides selected from organometallic halides and/or metallic halides are added to the mixts. during their prepn. A compn. comprising Lacqvyl S 071 s (PVC) 100, BTA III F 7, AC 316 A (lubricant) 0.3, Lacer BN (lubricant) 0.45, **epoxidized soybean oil** 1, C(CH<sub>2</sub>O<sub>2</sub>CCH<sub>2</sub>SH)<sub>4</sub> 1, and n-C<sub>8</sub>H<sub>17</sub>SnCl<sub>3</sub> (I) 0.017 part showed color stability 9 min and **thermal stability** 12 min, compared with .ltoreq.2 min and 4 min, resp., without I.
- IC ICM C08K005-00
- ICS C08K013-02; C08L027-02; C08L027-06
- ICI C08K005-00, C08K005-37, C08K005-56; C08K005-00, C08K005-37, C08K005-57; C08K013-02, C08K003-16, C08K005-37
- CC 37-6 (Plastics Manufacture and Processing)
- IT 3091-25-6 3542-36-7, Dioctyltin dichloride 7646-78-8, Tin tetrachloride, uses and miscellaneous 10108-64-2, Cadmium dichloride 10193-99-4, Pentaerythritol tetramercaptoacetate 26401-97-8
- RL: USES (Uses)  
(stabilizers, for halogenated polymer compns.)
- IT 10193-99-4, Pentaerythritol tetramercaptoacetate  
RL: USES (Uses)  
(stabilizers, for halogenated polymer compns.)
- RN 10193-99-4 HCA
- CN Acetic acid, mercapto-, 2,2-bis[[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

← claim  
15



Peter, the answers  
are not great.

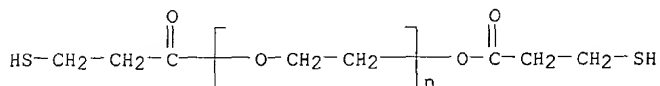
soybean oil, adipic  
← acid, claim 22...

=> d L115 1,5,10,15,20,25,30,35,40,45, 50, 55, 60,65,70-72 cbib abs hitind hitstr

L115 ANSWER 1 OF 72 HCA COPYRIGHT 2003 ACS

- 136:355810 Polyoxyalkylene mercapto **fatty acid esters** and their manufacture. Miyata, Katsuji; Kazutomo, Toshio; Tateishi, Hayami; Kawasaki, Noriaki; Nakamura, Naoya; Tsuboi, Makoto (Sakai Chemical Industry Co., Ltd., Japan; Chugoku Marine Paints, Ltd.). Jpn. Kokai Tokkyo Koho JP 2002128889 A2 20020509, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-325535 20001025.
- AB The polyoxyalkylene monoesters or diesters with mercapto **fatty acids** shown as R<sub>1</sub>O(R<sub>2</sub>O)<sub>n</sub>CO(CH<sub>2</sub>)<sub>m</sub>SH [R<sub>1</sub> = H, C<sub>1</sub>-20 alkyl, C<sub>2</sub>-20 alkenyl, C<sub>6</sub>-20 (substituted) Ph; R<sub>2</sub> = C<sub>1</sub>-4 alkylene; l = m = 1-10; n = 1-30] or HS(CH<sub>2</sub>)<sub>l</sub>CO<sub>2</sub>(R<sub>2</sub>O)<sub>n</sub>CO(CH<sub>2</sub>)<sub>m</sub>SH (R<sub>2</sub> = C<sub>1</sub>-4 alkylene; l, m = 1-30; 3 < n .ltoreq. 30) are manufd. by esterification of R<sub>1</sub>O(R<sub>2</sub>O)<sub>n</sub>H with HO<sub>2</sub>C(CH<sub>2</sub>)<sub>m</sub>SH or esterification of R<sub>1</sub>O(R<sub>2</sub>O)<sub>n</sub>H with HO<sub>2</sub>C(CH<sub>2</sub>)<sub>m</sub>SH and HO<sub>2</sub>C(CH<sub>2</sub>)<sub>l</sub>SH. Thus, reaction of 5.01 mol 3-mercaptopropionic acid with 2.50 mol polyethylene glycol at 100-125.degree. for 5 h in the presence of p-toluenesulfonic acid gave 2.19 mol polyethylene glycol bis(3-mercaptopropionate).

IC ICM C08G065-334  
 CC 37-3 (Plastics Manufacture and Processing)  
 IT Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (acrylic, block; manuf. of polyoxyalkylene mercapto **fatty acid** esters for prepn. of block copolymer)  
 IT Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (esters; manuf. of polyoxyalkylene mercapto **fatty acid** esters for prepn. of block copolymer)  
 IT Esterification  
 (manuf. of polyoxyalkylene mercapto **fatty acid** esters for prepn. of block copolymer)  
 IT 51158-47-5P, Polyethylene glycol bis(3-mercaptopropionate) 60735-92-4P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (manuf. of polyoxyalkylene mercapto **fatty acid** esters for prepn. of block copolymer)  
 IT 420120-94-1P 420120-95-2P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (triblock; manuf. of polyoxyalkylene mercapto **fatty acid** esters for prepn. of block copolymer)  
 IT 51158-47-5P, Polyethylene glycol bis(3-mercaptopropionate)  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (manuf. of polyoxyalkylene mercapto **fatty acid** esters for prepn. of block copolymer)  
 RN 51158-47-5 HCA  
 CN Poly(oxy-1,2-ethanediyl), .alpha.-(3-mercaptopropyl)-.omega.-(3-mercaptopropoxy)- (9CI) (CA INDEX NAME)



L115 ANSWER 5 OF 72 HCA COPYRIGHT 2003 ACS

132:13156 Anticorrosive coating compositions for use on metal and precoated steel surface and method for using them. Hosono, Tetsuo; Nakazato, Michiaki; Inoue, Tadayoshi (Nippon Dacro Shamrock Co., Ltd., Japan). PCT Int. Appl. WO 9960185 A1 19991125, 62 pp. DESIGNATED STATES: W: CN, JP, KR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1999-JP2511 19990514. PRIORITY: JP 1998-133824 19980515.  
 AB The compns. which do not contain hexavalent chromium compd.-type pollutants, comprise the polyesters bearing .gtoreq.1 SH groups, optionally curing agents, curing catalysts or/and silica (as anti-dripping aid), and can be cured by heating. Thus, heating 1 mol ethylene glycol with 2 mol 3-mercaptopropionic acid to 180.degree. over 2 h and at 180-190.degree. for 2 h and terminating at 210-220.degree. while removing water byproduct gave a diester 100 parts of which was combined with 200 MIBK to give a coating.  
 IC ICM C23C022-00  
 ICS C23C022-53  
 CC 42-10 (Coatings, Inks, and Related Products)  
 Section cross-reference(s): 55, 56  
 IT 96-27-5P 638-16-4P, 1,3,5-Triazine-2,4,6(1H,3H,5H)-trithione

7539-04-0P, Pentaerythritol tri(3-mercaptopropionate)  
 7539-05-1P, Pentaerythritol di(3-mercaptopropionate)  
 7575-23-7P, Pentaerythritol tetra(3-mercaptopropionate)  
 10193-99-4P, Pentaerythritol tetra(mercptoacetate)  
 22504-50-3P, Ethylene glycol di(3-mercaptopropionate)  
 33007-83-9P 34039-24-2P, Thiomaleic acid 67905-23-1P,  
 Trimethylolpropane mono(3-mercaptopropionate) 251635-92-4P, Ethylene  
 glycol-terephthalic acid copolymer diester with 3-mercaptopropionic acid  
 251635-93-5P, Terephthalic acid-trimethylolpropane copolymer ester with  
 3-mercaptopropionic acid 251635-94-6P, Pentaerythritol-terephthalic acid  
 copolymer ester with mercaptoacetic acid 251635-95-7P,  
 Pentaerythritol-terephthalic acid copolymer ester with 3-mercaptopropionic  
 acid 251635-96-8P, **Adipic acid**-pentaerythritol  
 copolymer ester with 3-mercaptopropionic acid 251635-97-9P, Hitaloid D  
 1002 3-mercaptopropionate ester

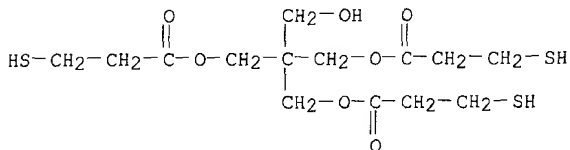
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
 engineered material use); PREP (Preparation); USES (Uses)  
 (anticorrosive coating comps. for use on metal and precoated steel  
 surface and method for using steel plate)

IT 7539-04-0P, Pentaerythritol tri(3-mercaptopropionate)  
 7539-05-1P, Pentaerythritol di(3-mercaptopropionate)  
 7575-23-7P, Pentaerythritol tetra(3-mercaptopropionate)  
 10193-99-4P, Pentaerythritol tetra(mercptoacetate)  
 22504-50-3P, Ethylene glycol di(3-mercaptopropionate)  
 33007-83-9P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
 engineered material use); PREP (Preparation); USES (Uses)  
 (anticorrosive coating comps. for use on metal and precoated steel  
 surface and method for using steel plate)

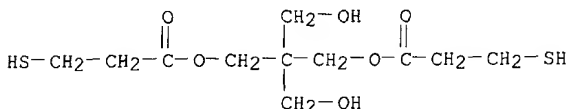
RN 7539-04-0 HCA

CN Propanoic acid, 3-mercapto-, 2-(hydroxymethyl)-2-[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



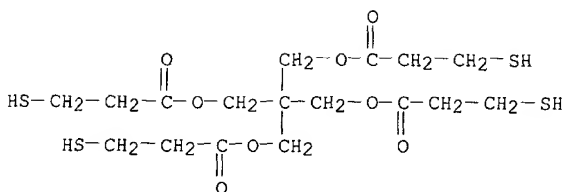
RN 7539-05-1 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis(hydroxymethyl)-1,3-propanediyl ester (9CI) (CA INDEX NAME)



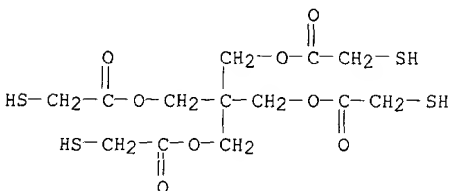
RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



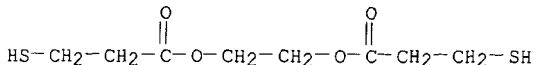
RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[[ (mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



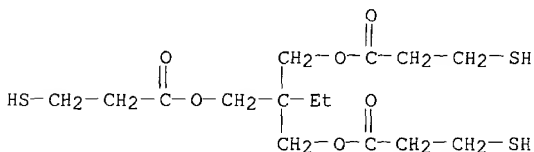
RN 22504-50-3 HCA

CN Propanoic acid, 3-mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



RN 33007-83-9 HCA

CN Propanoic acid, 3-mercapto-, 2-ethyl-2-[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

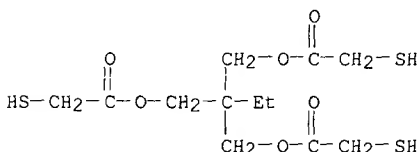


L115 ANSWER 10 OF 72 HCA COPYRIGHT 2003 ACS

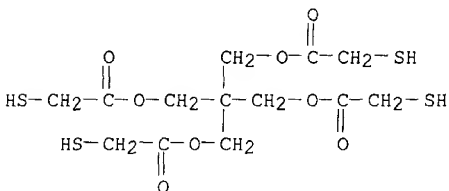
128:193616 Rubber compositions with improved tensile properties. Kawatsa, Satoshi (Yokohama Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10060199 A2 19980303 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-219941 19960821.

AB The compns., useful for hoses, tire inner liners, etc., comprise halogen-contg. C4-7-isomonoolefin-p-alkylstyrene copolymers 100, compds. having .gtoreq.2 COCH2SH 0.5-10.0, and .gtoreq.1 C12-22 (un)satd. **fatty acid** Zn salts and/or ZnO 1-10 parts. Thus, EXXPRO 89-4 (brominated isobutylene-p-methylstyrene copolymer) was blended with 2 phr Zn stearate and 2 phr polyoxypropylene glycerol ether

- tris(thioglycolate) (I), kneaded, and press vulcanized to give a sheet showing improved tensile breaking strength and elongation compared with a control not contg. I.
- IC ICM C08L023-20  
ICS C08K003-20; C08K005-098; C08K005-36; C08L025-08
- CC 39-9 (Synthetic Elastomers and Natural Rubber)
- IT 9018-90-0 10193-96-1, Trimethylolpropane tris(thioglycolate)  
10193-99-4, Pentaerythritol tetrakis(thioglycolate)  
RL: MOA (Modifier or additive use); USES (Uses)  
(vulcanizing agent; halogenated isomonoolefin-alkylstyrene rubber compns. with improved tensile properties)
- IT 10193-96-1, Trimethylolpropane tris(thioglycolate)  
10193-99-4, Pentaerythritol tetrakis(thioglycolate)  
RL: MOA (Modifier or additive use); USES (Uses)  
(vulcanizing agent; halogenated isomonoolefin-alkylstyrene rubber compns. with improved tensile properties)
- RN 10193-96-1 HCA
- CN Acetic acid, mercapto-, 2-ethyl-2-[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



- RN 10193-99-4 HCA
- CN Acetic acid, mercapto-, 2,2-bis[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L115 ANSWER 15 OF 72 HCA COPYRIGHT 2003 ACS

124:59414 Epoxy resin-containing unsaturated thermosetting resin compositions for in-mold coating. Morishita, Natsuki; Tsuji, Toshimitsu (Sekisui Chemical Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 07242797 A2 19950919 Heisei, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-33444 19940303.

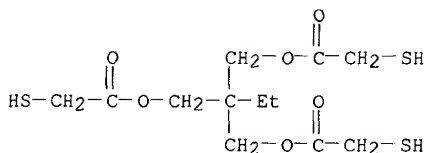
AB Title compns. for coatings with improved impact resistance and adhesion strength contain reactive unsatd. thermosetting resins, epoxy resins, and (a) unsatd. monoamines or (b) unsatd. monocarboxylic acids or unsatd. monomercaptans. Thus, a compn. of GY 250 18, allylamine 2, styrene soln. of isophthalate-based unsatd. polyester 80, tert-butylperoxy benzoate 0.8, CaCO<sub>3</sub> 30, and TiO<sub>2</sub> 10 parts was subjected to in-mold coating on sheet-molding-compd. (SMC, polystyrene/polyester) to give a test piece showing cross-cut adhesion 100/100 and high impact resistance.

IC ICM C08L063-00

ICS B29C039-10; B29C043-20; C08G059-40; C08G059-56  
ICA B29C045-14  
ICI B29K101-10  
CC 42-10 (Coatings, Inks, and Related Products)  
Section cross-reference(s): 38  
IT 79-39-0DP, Methacrylamide, reaction products with epoxy resins and unsatd. thermosetting resins 79-41-4DP, reaction products with epoxy resins and unsatd. thermosetting resins 100-42-5DP, Styrene, reaction products with vinyl-terminated polyoxyalkylenes and epoxy resins 107-11-9DP, Allylamine, reaction products with epoxy resins and unsatd. thermosetting resins 108-31-6DP, 2,5-Furandione, reaction products with epoxy resins and unsatd. thermosetting resins 109-80-8DP, 1,3-Dimercaptopropane, reaction products with epoxy resins and unsatd. thermosetting resins 111-40-0DP, Diethylenetriamine, reaction products with epoxy resins and unsatd. thermosetting resins 124-04-9DP, Hexanedioic acid, reaction products with epoxy resins and unsatd. thermosetting resins 868-77-9DP, reaction products with isocyanate-terminated polyoxyalkylenes and epoxy resins 870-23-5DP, Allylmercaptan, reaction products with epoxy resins and unsatd. thermosetting resins 5954-68-7DP, reaction products with epoxy resins and unsatd. thermosetting resins 10193-96-1DP, reaction products with epoxy resins and unsatd. thermosetting resins 25068-38-6DP, GY 250, reaction products with unsatd. resins 25322-68-3DP, vinyl-terminated, reaction products with epoxy resins 26471-62-5DP, TDI, reaction products with polyoxyalkylenes hydroxy-contg. vinyl compds. and epoxy resins 26590-20-5DP, Methyltetrahydrophthalic anhydride, reaction products with epoxy resins and unsatd. thermosetting resins 31305-94-9DP, MY 720, reaction products with unsatd. resins 61970-25-0DP, Bisphenol A-epichlorohydrin copolymer methacrylate, reaction products with epoxy resins and unsatd. monomers 64859-69-4DP, EPN 1139, reaction products with unsatd. resins 172487-29-5P 172487-30-8P 172487-31-9P 172487-32-0P 172487-33-1P 172487-34-2P 172487-35-3P 172487-36-4P 172487-37-5P 172487-38-6P 172487-39-7P 172487-40-0P 172487-41-1P 172487-42-2P 172487-43-3P  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(in-mold coating using unsatd. thermosetting resins contg. epoxy resins)  
IT 124-04-9DP, Hexanedioic acid, reaction products with epoxy resins and unsatd. thermosetting resins 10193-96-1DP, reaction products with epoxy resins and unsatd. thermosetting resins  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(in-mold coating using unsatd. thermosetting resins contg. epoxy resins)  
RN 124-04-9 HCA  
CN Hexanedioic acid (9CI) (CA INDEX NAME)

HO<sub>2</sub>C-(CH<sub>2</sub>)<sub>4</sub>-CO<sub>2</sub>H

RN 10193-96-1 HCA  
CN Acetic acid, mercapto-, 2-ethyl-2-[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L115 ANSWER 20 OF 72 HCA COPYRIGHT 2003 ACS

121:117335 Two-component permanent-waving composition with successive diminution of the thio group effect by addition and partial neutralization. Hartmann, Peter (Hartmann-Haarkosmetik GmbH, Germany). Ger. Offen. DE 4300320 A1 19940714, 6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1993-4300320 19930108.

AB The title compn. consists of (a) an aq. soln. of a keratin-reducing mercapto compd. (e.g. thioglycolic acid, glyceryl thioglycolate, cysteine, cysteamine) at pH >7.0 and (b) a sep. soln. of 0.01-20% maleic or fumaric acid or their salts and 0.01-10% capillary-active or noncapillary-active cationic compd. (pH <7). The solns. are mixed just before use in a proportion depending on the quality and condition of the hair to avoid damage to the hair from the mercapto compd. Thus, component (a) contained 50% aq. ammonium thioglycolate 27.0, NH<sub>3</sub> 1.70, perfume oil 0.2, ethoxylated nonylphenol 0.8, and water 70.3 g (pH 9.5) and component (b) contained trimethylcetylammmonium chloride 1.0, coco **fatty acid** dimethylammmonium betaine 1.0, maleic acid 4.0, ethoxylated nonylphenol 0.8, perfume oil 0.2, and water 93.0. Components (a) and (b) were mixed in proportions varying from 90:10 (final pH 9.4) for strong untreated hair to 40:60 (final pH 6.8) for very sensitive, bleached, porous hair. The decrease in reducing agent concn. after 20 min was 4 and 26%, resp., in the 2 cases.

IC ICM A61K007-09

ICS A45D007-04

CC 62-3 (Essential Oils and Cosmetics)

IT 52-90-4, Cysteine, biological studies 60-23-1, Cysteamine 68-11-1, Thioglycolic acid, biological studies 79-42-5, Thiolactic acid 14974-53-9, Glyceryl thioglycolate 134367-07-0

RL: BIOL (Biological study)

(modulation of, in hair permanent-waving compns. with fumarate and maleate)

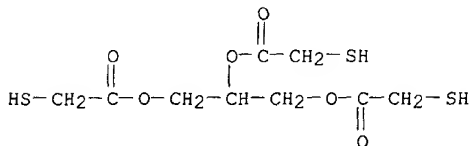
IT 14974-53-9, Glyceryl thioglycolate

RL: PROC (Process)

(modulation of, in hair permanent-waving compns. with fumarate and maleate)

RN 14974-53-9 HCA

CN Acetic acid, mercapto-, 1,2,3-propanetriyl ester (8CI, 9CI) (CA INDEX NAME)



L115 ANSWER 25 OF 72 HCA COPYRIGHT 2003 ACS

115:137483 Catalysts and process for curing epoxy resins and unsaturated polyesters and polyurethanes in presence of thiol compound complexes with metal salts. Giovando, Gualtiero (AKZO N. V., Neth.; Saint Peter S.r.l.).

PCT Int. Appl. WO 9012826 A1 19901101, 41 pp. DESIGNATED STATES: W: CA, JP, US; RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1990-EP729 19900426. PRIORITY: IT 1989-67301 19890426; IT 1989-67302 19890426; IT 1989-67954 19891107; IT 1989-68109 19891218.

AB Cocatalyst compns. for free-radical curing title polymers comprise complexes of metal (Li, Al, Mg, Mn, Zn, Sn) salts with thiols or thiol adducts with epoxides and anhydrides. Thus, to 100 g DSM NX 170 (unsatd. polyester) were added 0.5 g pentaerythritol tetrakis(mercaptoacetate)-maleic anhydride adduct and 0.2 g AlCl<sub>3</sub> in an 10% ethanolic soln. To the mixt. was added 2% 50:50 Me Et ketone peroxide/acetylacetone peroxide. This sample had time to gelation 3 min, time for exothermal peak 5 min, and temp. of exothermal peak 126.degree..

IC ICM C08F299-04

ICS C08F299-06; C08K005-37

CC 37-6 (Plastics Manufacture and Processing)

IT 50-99-7, D-Glucose, uses and miscellaneous 57-48-7, Fructose, uses and miscellaneous 77-79-2, Sulpholene 77-92-9D, Citric acid, esters with mercapto alcs. 85-42-7 85-43-8, Tetrahydrophthalic anhydride 87-69-4D, esters with mercapto alcs. 89-32-7 93-91-4, Benzoylacetone 94-36-0, Dibenzoyl peroxide, uses and miscellaneous 105-53-3, Diethylmalonate 106-87-6 107-22-2, Ethanedial 108-30-5, Succinic anhydride, uses and miscellaneous 108-31-6, 2,5-Furandione, uses and miscellaneous 110-06-5, Di-tert-butyl disulfide 110-15-6D, Succinic acid, derivs. 110-15-6D, Succinic acid, esters with mercapto alcs. 110-16-7D, 2-Butenedioic acid (Z)-, esters with mercapto alcs. 110-17-8D, 2-Butenedioic acid (E)-, esters with mercapto alcs. 111-46-6, Diethylene glycol, uses and miscellaneous 115-27-5, Chlorendic anhydride 120-46-7, Dibenzoylmethane 123-54-6, Acetylacetone, uses and miscellaneous 124-04-9D, Hexanedioic acid, esters with mercapto alcs. 126-33-0, Sulpholane 127-17-3D, Pyruvic acid, esters 137-66-6, Ascorbic palmitate 141-82-2D, Malonic acid, esters with mercapto alcs. 141-97-9, Ethylacetoacetate 144-62-7D, Oxalic acid, esters with mercapto alcs. 328-50-7D, esters 431-03-8, Diacetyl 1338-23-4 1675-54-3 2180-18-9, Manganese acetate 2224-15-9 2561-85-5, Dodecylsuccinic anhydride 4720-60-9 4756-13-2, 1,2,3-Propanetrithiol 4802-20-4 6915-15-7D, Malic acid, esters with mercapto alcs. 7440-31-5D, Tin, salts, complexes 7447-41-8, Lithium chloride (LiCl), uses and miscellaneous 7575-23-7 7646-85-7, Zinc chloride, uses and miscellaneous 7722-84-1, Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), uses and miscellaneous 10193-99-4 11138-47-9, Sodium perborate 16096-30-3, Propylene glycol diglycidyl ether 16096-31-4 17557-23-2 22504-50-3, 1,2-Ethylene glycol bis(3-mercaptopropionate) 25134-21-8, Methylnadac anhydride 25550-51-0, Methylhexahydrophthalic anhydride 26590-20-5, Methyl tetrahydrophthalic anhydride 26951-52-0 27043-36-3 27252-21-7D, Benzenetricarboxylic acid, esters with mercapto alcs. 37187-22-7 85758-64-1, Tris(mercaptoethyl) citrate 87110-76-7, Bisphenol F diglycidyl ether 135952-47-5, Sorbityl tetramercaptoacetate 135986-46-8, 1,2-Propanedithiolmaleate 136002-69-2 136013-61-1, Trimercaptomethyl citrate 136036-35-6, 1,2,6-Hexanetrithiol 136036-36-7, Tris(mercapto-2-propyl) citrate

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for curing unsatd. polymers and epoxy resins)

IT 124-04-9D, Hexanedioic acid, esters with mercapto alcs.

7575-23-7 10193-99-4 22504-50-3, 1,2-Ethylene

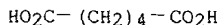
glycol bis(3-mercaptopropionate) 85758-64-1,  
 Tris(mercaptoethyl)citrate 136002-69-2 136013-61-1,  
 Trimercaptomethyl citrate 136036-36-7, Tris(mercapto-2-propyl)  
 citrate

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for curing unsatd. polymers and epoxy resins)

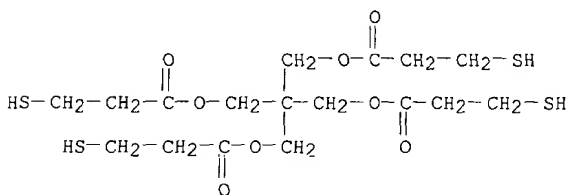
RN 124-04-9 HCA

CN Hexanedioic acid (9CI) (CA INDEX NAME)



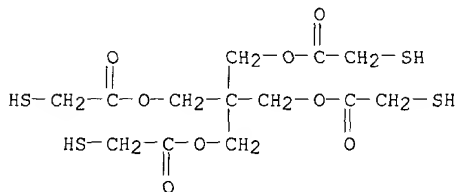
RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



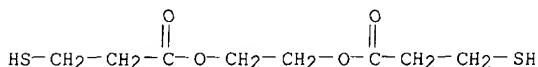
RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[(mercaptoacetyl)oxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



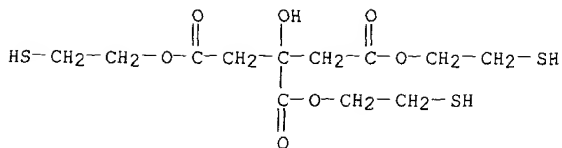
RN 22504-50-3 HCA

CN Propanoic acid, 3-mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



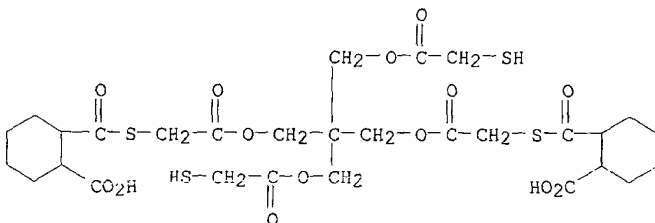
RN 85758-64-1 HCA

CN 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, tris(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



RN 136002-69-2 HCA

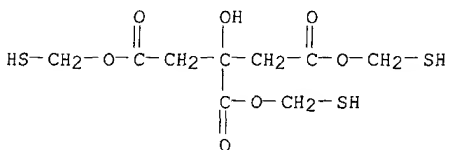
CN Cyclohexanecarboxylic acid, 2,2'-[7,7-bis[[ (mercaptoacetyl)oxy]methyl]-1,4,10,13-tetraoxo-5,9-dioxo-2,12-dithiatridecane-1,13-diyl]bis[methyl- (9CI) (CA INDEX NAME)]



2 ( D1-Me )

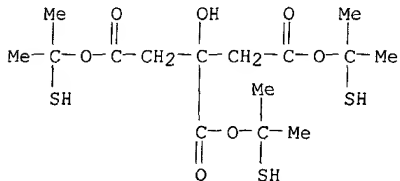
RN 136013-61-1 HCA

CN 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, tris(mercaptomethyl) ester (9CI) (CA INDEX NAME)]



RN 136036-36-7 HCA

CN 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, tris(1-mercapto-1-methylethyl) ester (9CI) (CA INDEX NAME)]



L115 ANSWER 30 OF 72 HCA COPYRIGHT 2003 ACS

109:111098 Colloidal stable vinyl halide polymerizations with mercaptan chain transfer agents. Sharaby, Zaev (Goodrich, B. F., Co., USA). Eur. Pat. Appl. EP 258832 A2 19880309, 7 pp. DESIGNATED STATES: R: BE, DE, FR, GB, IT, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1987-112517 19870828. PRIORITY: US 1986-902714 19860902.

AB Chain transfer compns. useful for the manuf. of low mol. wt. vinyl halide polymer having good melt flow, particle size and distribution comprise mercapto compds. and mercaptan-miscible, water-insol. materials which are nonpolymerizable with vinyl halides such as silicones. Thus, polymg. 100 parts vinyl chloride in water in the presence of hydroxyalkyl cellulose 0.10, poly(vinyl alc.) 0.1, initiator 0.13, 2-mercaptoethanol (I) 0.5, and oligosilicone PS 340 2.5 parts gave PVC having intrinsic viscosity 0.335, av. particle size 52 .mu., and particle size distribution 24% vs. 0.68, 172, and 21, resp., for PVC prepd. without I and PS 340.

IC ICM C08F014-06

ICS C08F002-38

CC 35-4 (Chemistry of Synthetic High Polymers)

IT **Fatty acids**, uses and miscellaneous

Polyesters, uses and miscellaneous

RL: USES (Uses)

(chain-transfer compn. contg., for manuf. of stable PVC colloids)

IT 60-24-2 68-11-1, uses and miscellaneous 70-49-5 79-42-5 96-27-5

107-96-0 123-81-9 1338-41-6, Sorbitan monostearate

1338-43-8, Sorbitan monooleate 10047-28-6 10193-96-1

16215-21-7 19721-22-3 24980-41-4 25103-09-7 39363-95-6, Paraplex G

57 92680-71-2, Tone 0310 100359-88-4, Tone 0240 116283-76-2, Tone L

200

RL: USES (Uses)

(chain-transfer compn. contg., for manuf. of stable PVC colloids)

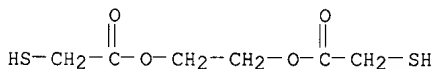
IT 123-81-9 10193-96-1

RL: USES (Uses)

(chain-transfer compn. contg., for manuf. of stable PVC colloids)

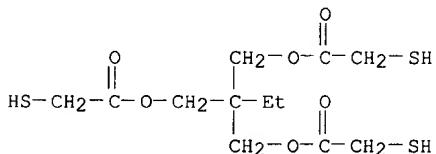
RN 123-81-9 HCA

CN Acetic acid, mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



RN 10193-96-1 HCA

CN Acetic acid, mercapto-, 2-ethyl-2-[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L115 ANSWER 35 OF 72 HCA COPYRIGHT 2003 ACS

102:205540 Coating composition. Smith, Derek Hedley; Taylor, John Roberts (Ault and Wiborg Paints Ltd., UK). Eur. Pat. Appl. EP 129394 A1 19841227, 46 pp. DESIGNATED STATES: R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE.

(English). CODEN: EPXXDW. APPLICATION: EP 1984-303957 19840612.  
PRIORITY: GB 1983-16601 19830617.

- AB A 2-pack, air-drying, automotive coating compn. contains an epoxy resin, an amine or amide group-contg. acrylic resin (A), and polyesters or alkyd resins contg. thiol and, optionally, carboxylic acid groups. Thus, neopentyl glycol 813, trimethylolpropane 543, and phthalic anhydride 1647 g were polymd. in N at 180.degree. for 4 h, while maintaining the reflux, and then at 200.degree. until acid value fell to 19. The reaction mixt. was cooled, admixed with 224 g mercaptoacetic acid, and heated at 200.degree. until acid value reached .apprx.24. When thinned, the resultant resin (B) had viscosity 22 P (25.degree.) and contained 70.3% nonvolatiles. A clear lacquer was formulated contg. 1489 g com. A and 139 B, as well as various additives and solvents, in the 1st package and a com. epoxy resin crosslinker in the 2nd package.
- IC ICM C09D003-81  
ICS C09D003-58; C08L063-00
- ICI C08L063-00, C08L033-06, C08L101-02
- CC 42-10 (Coatings, Inks, and Related Products)
- IT **Fatty acids, esters**  
RL: USES (Uses)  
(C9-21-branched, glycidyl esters, thiol group-contg. alkyd resins, coatings)
- IT 56-81-5D, polymers with **adipic acid**, pentaerythritol, phthalic anhydride, **fatty acid** glycidyl esters and mercaptoacetic acid 68-11-1D, esters with polyester polyols 85-44-9D, polymers with **adipic acid**, glycerol and pentaerythritol, esters with fatty glycidyl esters and mercaptoacetic acid 115-77-5D, polymers with **adipic acid**, glycerol, phthalic anhydride, **fatty acid** glycidyl esters and mercaptoacetic acid 124-04-9D, polymers with glycerol, pentaerythritol and phthalic anhydride, esters with fatty glycidyl esters and mercaptoacetic acid 10193-96-1D, reaction products with Bu methacrylate-Et acrylate-glycidyl methacrylate-Me methacrylate copolymer 52303-13-6D, esters with mercaptoacetic acid 78618-13-0 78618-13-0D, reaction products with trimethylolpropane trimercaptoacetate 96387-25-6 96387-26-7 96398-26-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(coatings, air-drying, automotive, two-pack)
- IT 124-04-9D, polymers with glycerol, pentaerythritol and phthalic anhydride, esters with fatty glycidyl esters and mercaptoacetic acid 10193-96-1D, reaction products with Bu methacrylate-Et acrylate-glycidyl methacrylate-Me methacrylate copolymer  
RL: TEM (Technical or engineered material use); USES (Uses)  
(coatings, air-drying, automotive, two-pack)
- RN 124-04-9 HCA
- CN Hexanedioic acid (9CI) (CA INDEX NAME)

HO<sub>2</sub>C-(CH<sub>2</sub>)<sub>4</sub>-CO<sub>2</sub>H

RN 10193-96-1 HCA

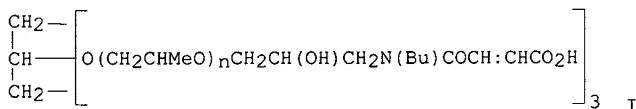
CN Acetic acid, mercapto-, 2-ethyl-2-[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L115 ANSWER 45 OF 72 HCA COPYRIGHT 2003 ACS

88:7920 Curable polyene-polymercaptan compositions. Derek, J. R. Massy; Winterbottom, Kenneth (Ciba-Geigy A.-G., Switz.). S. African ZA 7501222 19751212, 44 pp. (English). CODEN: SFXAB. APPLICATION: ZA 1975-1222 19740227.

GI



AB Compns. contg. maleamated reaction products (prepd. by reaction of poly(oxypropylene) ethers or linoleic dimer-trimer mixts. with mono- or polyamines and maleic anhydride) and HS group-terminated polyols or acrylonitrile-butadiene copolymers are useful in the manuf. of coatings, adhesives, foams, and castings. Thus, a mixt. contg. a  $\text{CHCl}_3$  soln. of glycerol tris[poly(oxypropylene)] triglycidyl ether [37237-76-6] of mol. wt. 1,000 and 3 molar equivs. of  $\text{BuNH}_2$  [109-73-9] was treated with 3 molar equivs. of maleic anhydride [108-31-6] in  $\text{CHCl}_3$  at  $<40^\circ\text{C}$ . to give a 50%  $\text{CHCl}_3$  soln. of polymaleamate (I) [61722-27-8]. I (11.0 g) was mixed with 1.0 g pentaerythritol tetrathioglycolate [10193-99-4] and 1 ml 25% aq.  $\text{Na}_2\text{CO}_3$  to give a soft, large-celled foam which was self-extinguishing.

IC C07C

CC 36-6 (Plastics Manufacture and Processing)

IT **Fatty acids, polymers**

(dimers and trimers, aminoamides, adducts with maleic anhydride, prepn. and crosslinking of, with polymercaptans)

IT 9018-90-0 **10193-99-4** 14970-87-7 31942-94-6 37286-65-0  
58984-21-7

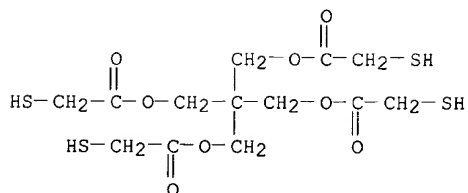
RL: MOA (Modifier or additive use); USES (Uses)  
(crosslinking agents, for polymaleamates)

IT **10193-99-4**

RL: MOA (Modifier or additive use); USES (Uses)  
(crosslinking agents, for polymaleamates)

RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[[[mercaptoacetyl]oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



IT 71095-72-2

RL: USES (Uses)

(primers, on fiber-reinforced plastics, for plating with copper)

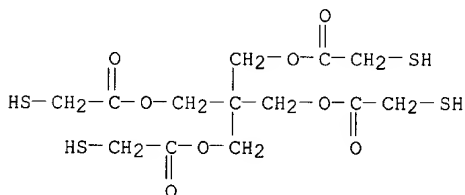
RN 71095-72-2 HCA

CN Acetic acid, mercapto-, 2,2-bis[[ (mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester, polymer with 3,9-diethenyl-2,4,8,10-tetraoxaspiro[5.5]undecane and 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 10193-99-4

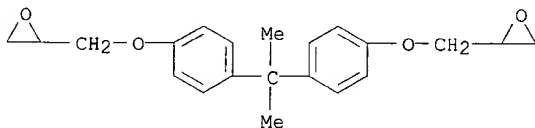
CMF C13 H20 O8 S4



CM 2

CRN 1675-54-3

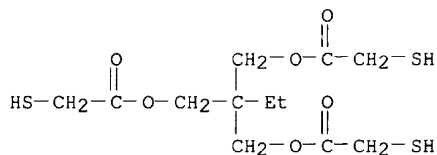
CMF C21 H24 O4



CM 3

CRN 78-19-3

CMF C11 H16 O4



L115 ANSWER 40 OF 72 HCA COPYRIGHT 2003 ACS

91:92665 Surface treatment of electrically nonconducting materials. Kanehiro, Haruyuki; Takiyama, Eiichiro (Showa Highpolymer Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 54047766 19790414 Showa, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1977-113297 19770922.

AB Bisphenol A diglycidyl ether-diallylidene-pentaerythritol-pentaerythritol tetrathiolglycolate copolymer [71095-72-2], adipic acid-ethylene glycol-pentaerythritol tetrathiolglycolate-propylene glycol-tolylene diisocyanate copolymer [71110-40-2], or a similar polymer was used as a primer for chem. plating of PVC [9002-86-2] and fiber-reinforced plastics. Thus, 200 mL dioxane, 227 g 95% pentaerythritol tetrathiolglycolate, and 63 g diallylidene-pentaerythritol were mixed and irradiated with a high-pressure Hg lamp at 70-80.degree. to viscosity >20 P, the product was mixed with 0.3 g hydroquinone, dild. with dioxane to viscosity 2.5-3 P, and mixed with dioxane contg. bisphenol A diglycidyl ether at SH-epoxy ratio 1.5:1 to give a primer, and a fiber-reinforced plastic was sprayed with the primer and plated with Cu. C08J007-04; C23C003-02

IC 37-3 (Plastics Fabrication and Uses)

IT 71095-94-8

RL: USES (Uses)

(primers, on PVC, for plating with copper)

IT 71095-72-2

RL: USES (Uses)

(primers, on fiber-reinforced plastics, for plating with copper)

IT 71095-94-8

RL: USES (Uses)

(primers, on PVC, for plating with copper)

RN 71095-94-8 HCA

CN Acetic acid, mercapto-, 2,2-bis[[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester, polymer with DEN 438 (9CI) (CA INDEX NAME)

CM 1

CRN 63957-64-2

CMF Unspecified

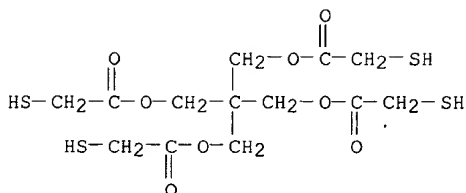
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 10193-99-4

CMF C13 H20 O8 S4



L115 ANSWER 50 OF 72 HCA COPYRIGHT 2003 ACS

84:166348 Photocurable resin lacquer. (Grace, W. R., and Co., USA). Jpn. Kokai Tokkyo Koho JP 50103536 19750815 Showa, 20 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1974-8643 19740121.

AB Photocurable lacquer compns. were prepd. from compns. contg. a polyene component having .gtoreq.2 C:C per mol., a polythiol component having .gtoreq.2 SH groups per mol., a resin component, and a photocuring catalyst. Thus, 10 parts of a polyester [32505-78-5] prepd. from a mixt. of phthalic anhydride 275, maleic anhydride 60.8, **adipic acid** 90.5, and diethylene glycol 328 g was mixed at 70.degree. with triallyl isocyanurate [1025-15-6] 10 pentaerythritol tetrakis(3-mercaptopropionate) [7575-23-7] 14, benzophenone 0.5, H3PO4 0.025, a com. antioxidant 0.05 g to give a transparent lacquer (viscosity 12,000-8000 cP, pH 4.5-5.5). The lacquer was coated on a red printed steel can, and exposed to uv to give a cured lacquer film.

IC C09D; C08F

CC 42-3 (Coatings, Inks, and Related Products)

IT 7575-23-7

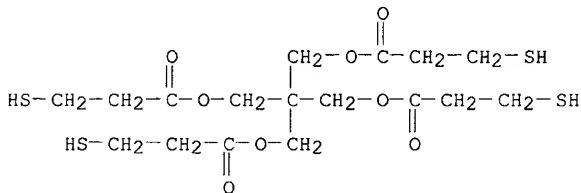
RL: TEM (Technical or engineered material use); USES (Uses)  
(coatings, contg. isocyanurates and polyesters, photocurable)

IT 7575-23-7

RL: TEM (Technical or engineered material use); USES (Uses)  
(coatings, contg. isocyanurates and polyesters, photocurable)

RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L115 ANSWER 55 OF 72 HCA COPYRIGHT 2003 ACS

84:18488 Hardening of composition containing polyepoxy compound. (Dow Chemical Co., USA). Neth. Appl. NL 7314740 19750429, 11 pp. (Dutch). CODEN: NAXXAN. APPLICATION: NL 1973-14740 19731026.

AB Epoxy resins were hardened in presence of oxazolines, using as accelerators compds. of formula R(X)n(R = alkyl group and X = halo, CO2H, SH, n = 1-2; or R = arom. group, X = OH SH, n = 1-3). Thus, 15.4g bisphenol A-epichlorohydrin polymer [25068-38-6] and 9.6 g

2,2'-(thiodiethylene)bis(2-oxazoline) [29633-58-7] were mixed, heated to 120.degree. over 30 min, cooled to 90.degree. mixed with 1.0 g **adipic acid** [124-04-9], and heated to 150.degree., giving gelation after 15 min and complete hardening in 1 hr to a material with tensile strength .gtoreq.770 kg/cm2. A comparison without the **adipic acid** had gel time 50 min and tensile strength 581 kg/cm2 after 1 hr at 150.degree..

IC C08G

CC 36-6 (Plastics Manufacture and Processing)

ST epoxy resin crosslinking catalyst; **adipic acid**

crosslinking catalyst; oxazoline crosslinking epoxy resin

IT 74-95-3 79-34-5 96-11-7 96-12-8 108-46-3, uses and miscellaneous 108-73-6 108-95-2, uses and miscellaneous 111-24-0 **124-04-9**, uses and miscellaneous 1522-92-5 17527-79-6 **22504-50-3**

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for crosslinking of epoxy resins with oxazolines)

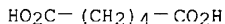
IT **124-04-9**, uses and miscellaneous **22504-50-3**

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for crosslinking of epoxy resins with oxazolines)

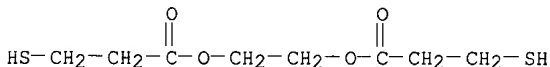
RN 124-04-9 HCA

CN Hexanedioic acid (9CI) (CA INDEX NAME)



RN 22504-50-3 HCA

CN Propanoic acid, 3-mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



L115 ANSWER 60 OF 72 HCA COPYRIGHT 2003 ACS

83:80475 Hardening of prepolymers. Tomalia, Donald A.; Thomas, Robert James (Dow Chemical Co., USA). Ger. DE 2355207 19750507, 17 pp. (German).

CODEN: GWXXAW. APPLICATION: DE 1973-2355207 19731105.

AB Comps. (12) such as **adipic acid** (I) [**124-04-9**]

, 1,5-dibromopentane [111-24-0], ethylene bis(3-mercaptopropionate) [**22504-50-3**], and resorcinol [108-46-3] were used to accelerate the hardening of epoxy resins contg. bis[2-(2-oxazolinyl)ethyl] sulfide (II) [29633-58-7] or 1,4-di(2-oxazolinyl)butane [36931-59-6]. Thus, 15.4 g bisphenol A-epichlorohydrin copolymer [25068-38-6] (epoxy equiv. wt. 186-192) was mixed with 9.6 g II, heated 30 min at 120.degree., mixed at 90.degree. with 1 g I, gelled during 18 min at 150.degree., and hardened during 1 hr at 150.degree. to give a test specimen with tensile strength 773 kg/cm2, compared with gel time 50 min and tensile strength 520 kg/cm2 in the absence of I.

IC C08G

CC 36-6 (Plastics Manufacture and Processing)

IT 74-95-3 79-34-5 96-11-7 96-12-8 108-46-3, uses and miscellaneous 108-73-6 108-95-2, uses and miscellaneous 111-24-0 **124-04-9**, uses and miscellaneous 1522-92-5 17527-79-6 **22504-50-3**

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for crosslinking of epoxy resins by oxazolines)

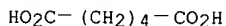
IT **124-04-9**, uses and miscellaneous **22504-50-3**

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for crosslinking of epoxy resins by oxazolines)

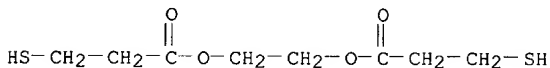
RN 124-04-9 HCA

CN Hexanedioic acid (9CI) (CA INDEX NAME)



RN 22504-50-3 HCA

CN Propanoic acid, 3-mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)



L115 ANSWER 65 OF 72 HCA COPYRIGHT 2003 ACS

78:5567 Chemically printing. Guthrie, James L.; Rendulic, Francis J. (Grace, W. R., and Co.). U.S. US 3694241 19720926, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 1971-135435 19710419.

AB Chem. curable printing inks were prepd. from Bonadur Red (I, phthalocyanine blue, TiO<sub>2</sub>, benzidine yellow, or channel black 1-30, allyl isocyanate-poly(tetramethylene ether) diol adduct (II), or a polytetraene (prepd. from phthalic anhydride, diethylene glycol, and optionally trimethylolpropane diallyl ether, allyl alc., trimellitic anhydride, propylene glycol, and **adipic acid**) 30-90, pentaerythritol tetrakis(.beta.-mercaptopropionate) (III) [7575-23-7] 30-90, and 2,4,3-trimethoxybenzophenone (IV) [3770-80-7] or benzophenone [119-61-9] 0 or 0.05-5 parts/100 parts polyene-polythiol sensitizer. The inks coated on paper to give products with good hardness and gloss, and no strike-through. Thus, II 83, I 5.2, III 17, and IV 0.52 parts/100 parts polyene-polythiol combination were blended at about 80.deg.. A newsprint of quality printing paper was dipped into a 0.01-0.1% aq. FeCl<sub>3</sub> soln., blotted, dried, and relief coated with the ink to give 2 .mu. thick images.

IC B41C; B41M; D06N

NCL 117015000

CC 42-12 (Coatings, Inks, and Related Products)

IT 7575-23-7

RL: USES (Uses)

(printing inks, contg. polydienes, pigments and sensitizers, chem.-curable)

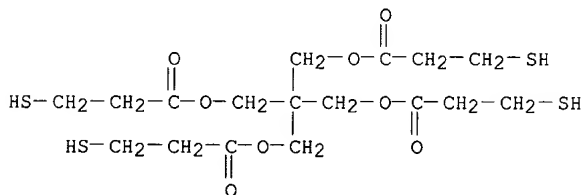
IT 7575-23-7

RL: USES (Uses)

(printing inks, contg. polydienes, pigments and sensitizers, chem.-curable)

RN 7575-23-7 HCA

CN Propanoic acid, 3-mercapto-, 2,2-bis[(3-mercapto-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



L115 ANSWER 70 OF 72 HCA COPYRIGHT 2003 ACS

67:100575 Poly(thio epoxides). (CIBA Ltd.). Brit. GB 1082104 19670906, 12 pp. (English). CODEN: BRXXAA. APPLICATION: GB 19650923.

AB Poly(thio epoxides) (I) of low viscosity, which are solvent resistant and need no plasticizer, are prepd. by treating polymercaptans with olefinically unsatd. epoxides. I possess good elec. properties such as a low dissipation factor. Thus, a reaction mixt. of 1 mole triethylene glycol, 4 moles mercaptoacetic acid (II), and 500 ml. toluene was heated from 25 to 124.degree. over 1 hr., at 124-40.degree. for 1 hr. and at 140-53.degree. for 2.5 hrs. The mixt. was freed of solvent and unreacted material by distn., reaching a pot temp. of 150.degree. / 1-2 mm. to give a thin liquid residual product of 340 g. having an equiv. wt. of 147 compared to a theoretical value of 155 and a Gardner-Holdt viscosity of A. Similarly prepd. were the reaction products of II with 1,4-butanediol, 1,1,1-trimethylolpropane (III), glycerol, 1,1,1-trimethylolethane, pentaerythritol (IV), a copolymer of allyl alc. and styrene, a hydroxylated castor oil, IV and soybean oil acid (V), III and V, bisphenol A, and a phenol-HCHO resin. Also similarly treated were .beta.-mercaptopropionic acid with III and mercaptoethanol with adipic acid. Then 224 g. glycol dimercaptoacetate (VI) and 456 g. allyl glycidyl ether (VIII) were mixed at 52.degree., the temp. being held for 8 hrs. at 50-5.degree. and then raised to 93.degree. over 0.5 hr. The volatile materials were then removed by stripping to a pot temp. of 101.degree./2 mm. The resultant liquid epoxide had a Gardner-Holdt viscosity of E and an epoxide equiv. wt. of 237. In a similar manner VI was treated with 2-allylphenol, vinyl-3,4-epoxycyclohexane (VIII), and limonene monoxide (IX). In a similar manner 1,4-butanedithiol was treated with VIII, trimethylolethane mercaptoacetate with VII, trimethylolpropane tris(mercaptoacetate) (X) with a mixt. of VII and IX, X, with VIII, III-dimerized V ester-mercaptoacetate with VIII, pentaerythritol tetrakis(mercaptoacetate) (XI) with VII, and XI with glycidyl acrylate. A 20-g. mixt. was prepd. from the reaction product of VI with VII, methylbicyclo[2.2.1]-hept-5-ene-2,3-dicarboxylic anhydride, and 2,4,6-tris(dimethylaminomethyl)phenol. The mixt. was placed in an Al dish of 2-in. diam. and heated to dissolve the anhydride. The Al dish with its content was then heated 0.75 hr. at 100.degree. to give a heat-infusible tack-free product. Similar products were prepd. using other dimercaptans.

IC C07D

CC 35 (Synthetic High Polymers)

IT Soybean oil

RL: USES (Uses)

(acids, esters with mercaptoacetates of 2-ethyl-2-(hydroxymethyl)-1,3-propanediol and pentaerythritol)

IT 90-72-2P 10193-94-9P 10193-95-0P 10193-96-1P

10193-97-2P 10193-98-3P 10193-99-4P

10194-00-0P 14974-53-9P 18271-65-3P 25119-62-4P,

preparation 25134-21-8P 25300-74-7P 25300-75-8P

25300-86-1P 25302-57-2P 25323-57-3P

28930-57-6P 30938-34-2P 30938-35-3P

30941-68-5P 30941-71-0P 30941-72-1P

RL: PREP (Preparation)

(prepn. of)

IT 10193-95-0P 10193-96-1P 10193-97-2P

10193-98-3P 10193-99-4P 10194-00-0P

14974-53-9P 25300-74-7P 25300-86-1P

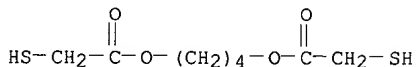
25302-57-2P 25323-57-3P 28930-57-6P

30938-34-2P 30938-35-3P 30941-68-5P

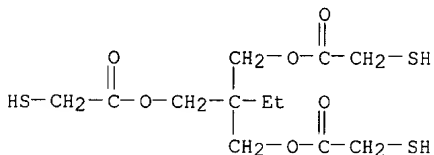
30941-71-0P 30941-72-1P

RL: PREP (Preparation)

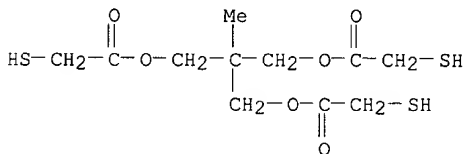
(prepn. of)  
 RN 10193-95-0 HCA  
 CN Acetic acid, mercapto-, 1,4-butanediyl ester (9CI) (CA INDEX NAME)



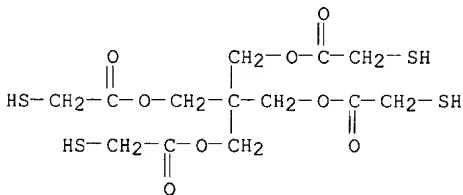
RN 10193-96-1 HCA  
 CN Acetic acid, mercapto-, 2-ethyl-2-[[mercaptoacetyl]oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



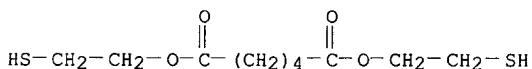
RN 10193-97-2 HCA  
 RN 10193-98-3 HCA  
 CN Acetic acid, mercapto-, 2-[[mercaptoacetyl]oxy]methyl]-2-methyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)



RN 10193-99-4 HCA  
 CN Acetic acid, mercapto-, 2,2-bis[[mercaptoacetyl]oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

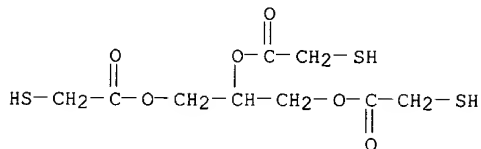


RN 10194-00-0 HCA  
 CN Hexanedioic acid, bis(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



RN 14974-53-9 HCA

CN Acetic acid, mercapto-, 1,2,3-propanetriyl ester (8CI, 9CI) (CA INDEX NAME)



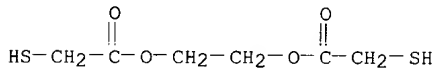
RN 25300-74-7 HCA

CN Acetic acid, mercapto-, ethylene ester, polymer with 3-vinyl-7-oxabicyclo[4.1.0]heptane (8CI) (CA INDEX NAME)

CM 1

CRN 123-81-9

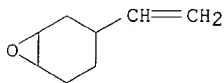
CMF C6 H10 O4 S2



CM 2

CRN 106-86-5

CMF C8 H12 O



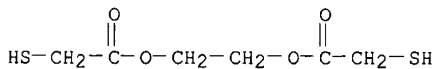
RN 25300-86-1 HCA

CN Acetic acid, mercapto-, ethylene ester, polymer with 1-(allyloxy)-2,3-epoxypropane (8CI) (CA INDEX NAME)

CM 1

CRN 123-81-9

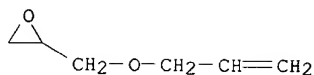
CMF C6 H10 O4 S2



CM 2

CRN 106-92-3

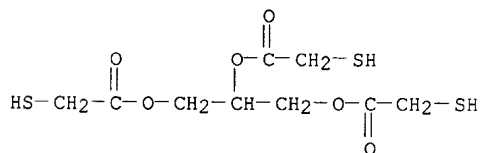
CMF C6 H10 O2



RN 25302-57-2 HCA  
 CN Acetic acid, mercapto-, 1,2,3-propanetriyl ester, polymer with  
 1-(allyloxy)-2,3-epoxypropane (8CI) (CA INDEX NAME)

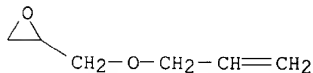
CM 1

CRN 14974-53-9  
 CMF C9 H14 O6 S3



CM 2

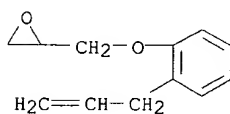
CRN 106-92-3  
 CMF C6 H10 O2



RN 25323-57-3 HCA  
 CN Acetic acid, mercapto-, ethylene ester, polymer with 1-(o-allylphenoxy)-  
 2,3-epoxypropane (8CI) (CA INDEX NAME)

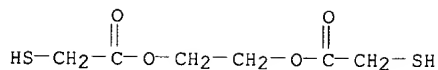
CM 1

CRN 4638-04-4  
 CMF C12 H14 O2



CM 2

CRN 123-81-9  
 CMF C6 H10 O4 S2



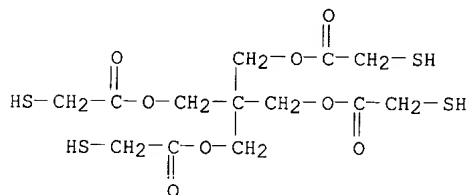
RN 28930-57-6 HCA

CN Acetic acid, mercapto-, neopentanedetetrayl ester, polymer with 1-(allyloxy)-2,3-epoxypropane (8CI) (CA INDEX NAME)

CM 1

CRN 10193-99-4

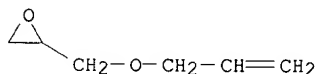
CMF C13 H20 O8 S4



CM 2

CRN 106-92-3

CMF C6 H10 O2



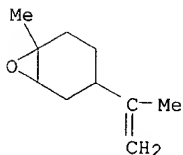
RN 30938-34-2 HCA

CN Acetic acid, mercapto-, ethylene ester, polymer with 1,2-epoxy-p-menth-8-ene (8CI) (CA INDEX NAME)

CM 1

CRN 1195-92-2

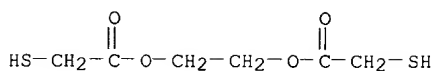
CMF C10 H16 O



CM 2

CRN 123-81-9

CMF C6 H10 O4 S2



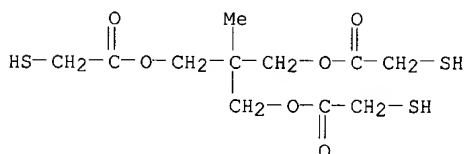
RN 30938-35-3 HCA

CN Acetic acid, mercapto-, triester with 2-(hydroxymethyl)-2-methyl-1,3-propanediol, polymer with 1-(allyloxy)-2,3-epoxypropane (8CI) (CA INDEX NAME)

CM 1

CRN 10193-98-3

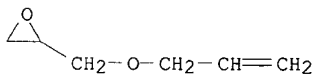
CMF C11 H18 O6 S3



CM 2

CRN 106-92-3

CMF C6 H10 O2



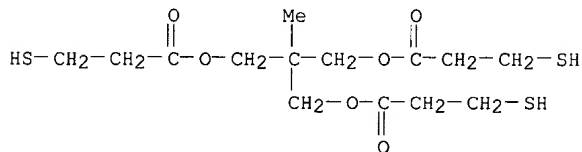
RN 30941-68-5 HCA

CN Propionic acid, 3-mercapto-, triester with 2-(hydroxymethyl)-2-methyl-1,3-propanediol, polymer with 3-vinyl-7-oxabicyclo[4.1.0]heptane (8CI) (CA INDEX NAME)

CM 1

CRN 10312-58-0

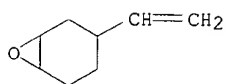
CMF C14 H24 O6 S3



CM 2

CRN 106-86-5

CMF C8 H12 O



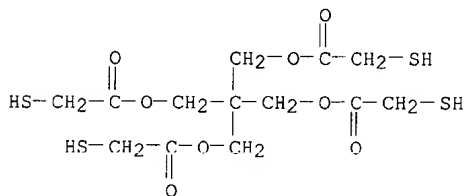
RN 30941-71-0 HCA

CN Acrylic acid, 2,3-epoxypropyl ester, polymer with neopentetetrayl tetrakis(mercaptoacetate) (8CI) (CA INDEX NAME)

CM 1

CRN 10193-99-4

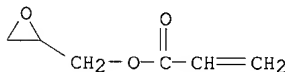
CMF C13 H20 O8 S4



CM 2

CRN 106-90-1

CMF C6 H8 O3



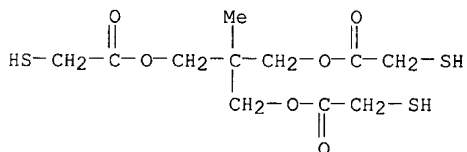
RN 30941-72-1 HCA

CN Acetic acid, mercapto-, triester with 2-(hydroxymethyl)-2-methyl-1,3-propanediol, polymer with 1,2-epoxy-p-menth-8-ene and 3-vinyl-7-oxabicyclo[4.1.0]heptane (8CI) (CA INDEX NAME)

CM 1

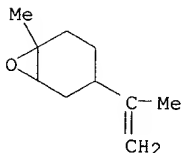
CRN 10193-98-3

CMF C11 H18 O6 S3



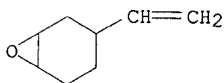
CM 2

CRN 1195-92-2  
CMF C10 H16 O



CM 3

CRN 106-86-5  
CMF C8 H12 O



L115 ANSWER 71 OF 72 HCA COPYRIGHT 2003 ACS

66:29581 Curing epoxy resins and polyhydric alcohols. (CIBA Ltd.). Brit. GB 1050095 19661207, 7 pp. (English). CODEN: BRXXAA. PRIORITY: US 19620604.

AB A mixt. of 1 mole triethylene glycol, 4 moles HSCG2CO2H, and 500 ml. PhMe was heated from 25.degree. to 124.degree. during 1 hr., at 124-40.degree. for 1 hr., and at 140-53.degree. for 2.5 hrs. Distn. of the mixt. gave 340 g. triethylene glycol bis(mercaptoacetate) (I). Similarly prepd. were 1,4-butanediol bis-(mercaptoacetate) (II), 1,1,1-trimethylpropane tris(mercaptopropionate), (III), 1,1,1-trimethylolpropane tris(mercaptopropionate), glycerol mercaptoacetate, 1,1,1-trimethylolethane tris-(mercaptoacetate) (IV), pentaerythritol tetrakis(mercaptoacetate) (V), styrene-allyl alc. copolymer mercaptoacetate (VI), hydroxylated castor oil (5 OH/mole) mercaptoacetate, and mercaptoethanyl adipate (VII) from mercaptoethanol and **adipic acid**. A mixt. of 685 g. distd. **soybean oil** acids, 259 g. pentaerythritol, and sufficient PhMe for const. reflux at 220.degree. was refluxed at 220.degree. for 3 hrs., dild. with 500 ml. PhMe to cool the mixt. to 100.degree., and filtered. The filtrate was heated with 3.5 moles HSCH2CO2H at 112-21.degree. for 1 hr., at 121-144.degree. for 1 hr., and at 144-46.degree. for 3.75 hrs. Removal of the solvent gave a mixed ester of pentaerythritol with HSCH2CO2H and **soybean oil** acids. A mixed ester (VIII) of 1,1,1-trimethylolpropane with HSCH2CO2H and dimerized **soybean oil** acids was prepd. similarly. Epon 828 (an epoxy resin) was cured by heating with maleic anhydride (IX) and an ester prepd. such as I, II, III, IV, V, or VI. The mixts. became solids on heating at 75.degree. for 1 hr. and remained hard on addnl. heating at 100.degree. for hr., at 125.degree. for 1 hr., at 150.degree. for 1 hr., and at 200.degree. for 1 hr. Curing was also effected by heating a thin layer of the curing mixt. to give tack-free solid casting. The cured resins had dielec. consts. comparable to uncured resins and better dissipation factors, and were solvent resistant. A polydric alc. was prepd. from 300 g. dimerized **soybean oil** acids and 134 g. 1,1,1-trimethylolpropane. The polyhydric alc. 21, VIII 30, and IX 9.8 parts were cast in a Al dish

in 0.5-in. thickness and cured at 100.degree. and 150.degree. for 1 hr. at each temp. to give a tack-free, infusible, flexible, resin. A mixt. of III 14, 1,1,1-trimethylpropane 4.4, and itaconic anhydride 11 parts was cured similarly.

IC C08G

CC 36 (Plastics Manufacture and Processing)

ST EPOXY-POLYALC MIXTS CURING; CURING EPOXY-POLYALC MIXTS; **SOYBEAN OIL ACIDS ESTERS**; MERCAPTOACETATES; POLYALC-EPOXY MIXTS CURING

IT **Soybean oil**

RL: USES (Uses)

(**fatty acids** of, polymercapto esters from mercaptoacetic acid, pentaerythritol and, as crosslinking agent for epoxy resins and polyhydric alcs.)

IT **Fatty acids**, uses and miscellaneous

RL: USES (Uses)

(polymercapto esters from mercaptoacetic acid, pentaerythritol and, as crosslinking agents for epoxy resins and polyhydric alcs.)

IT Acetic acid, mercapto-, polymercapto esters from **fatty acids**, pentaerythritol and, uses and miscellaneous

RL: USES (Uses)

(as crosslinking agents for epoxy resins and polyhydric alcs.)

IT Pentaerythritol, polymercapto esters from **fatty acids**, uses and miscellaneous

RL: USES (Uses)

(mercaptoacetic acid and, as crosslinking agents for epoxy resins and polyhydric alcs.)

IT 10193-94-9 10193-95-0 10193-96-1 10193-97-2

10193-98-3 10193-99-4 10194-00-0

14974-53-9

RL: USES (Uses)

(crosslinking of epoxy resins by dicarboxylic acid anhydrides and)

IT 10193-95-0 10193-96-1 10193-97-2

10193-98-3 10193-99-4 10194-00-0

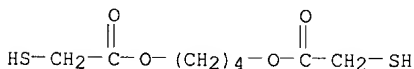
14974-53-9

RL: USES (Uses)

(crosslinking of epoxy resins by dicarboxylic acid anhydrides and)

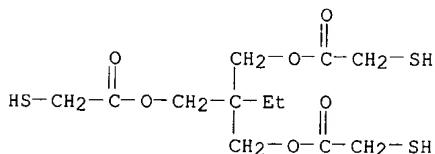
RN 10193-95-0 HCA

CN Acetic acid, mercapto-, 1,4-butanediyl ester (9CI) (CA INDEX NAME)



RN 10193-96-1 HCA

CN Acetic acid, mercapto-, 2-ethyl-2-[(mercaptoacetyl)oxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

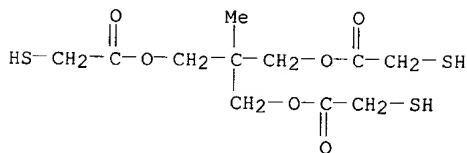


RN 10193-97-2 HCA

RN 10193-98-3 HCA

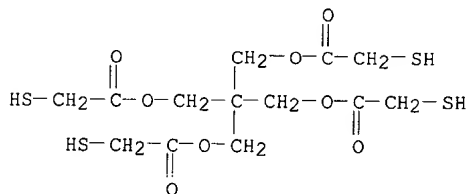
CN Acetic acid, mercapto-, 2-[(mercaptoacetyl)oxy]methyl]-2-methyl-1,3-

propanediyl ester (9CI) (CA INDEX NAME)



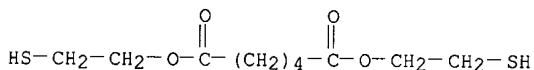
RN 10193-99-4 HCA

CN Acetic acid, mercapto-, 2,2-bis[(mercaptoacetyl)oxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)



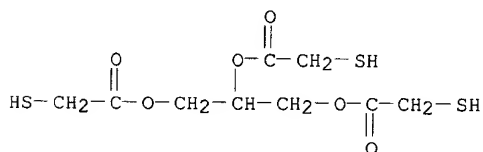
RN 10194-00-0 HCA

CN Hexanedioic acid, bis(2-mercaptoethyl) ester (9CI) (CA INDEX NAME)



RN 14974-53-9 HCA

CN Acetic acid, mercapto-, 1,2,3-propanetriyl ester (8CI, 9CI) (CA INDEX NAME)



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63:89820 Original Reference No. 63:16560f-g Molding and curing of epoxy-resin articles. (National Cash Register Co). NL 6405920 19641130, 10 pp. (Unavailable). PRIORITY, US 19630529

AB About 100 parts of a liquid epichlorohydrin-bisphenol A epoxy resin compn. with an epoxy equiv. of 175-195 and a kinematic viscosity of 5-7 poises at 25.degree.; 20 parts of an aliphatic amine curing agent with a viscosity of 500 cp. at 25.degree.; d<sub>20</sub> 1.05, ignition temp. (Cleveland open cup) 177.degree.; and 20 parts Mg silicate of particle size 12 .mu. were homogenized. Thirty g. of this mixt. was placed in a dielec. heater and heated for 15 min., raising the temp. to 46.1.degree.. The mixt. was poured into a preheated mold at 66.6.degree. and kept for 20 min. at this

temp. The article was removed from the mold and cured for 1 hr. at 66.6.degree.. It contained no bubbles. A low-mol.-wt. **fatty acid** polymer, the tris(.alpha.-ethylcaproate) of tris(dimethylaminomethyl)phenol, and ethylene bis(thioglycolate) also can be used as curing agents.

IC C08G

CC 48 (Plastics Technology)

IT 123-81-9, Ethylene glycol, bis(mercaptoacetate) 4572-95-6, Hexanoic acid, 2-ethyl-, compd with .alpha.,.alpha.',.alpha.''-tris(dimethylamino)mesitol (3:1)

(as curing agent for epoxy resin molding compns. of diglycidyl ether of bisphenol A)

IT 123-81-9, Ethylene glycol, bis(mercaptoacetate) (as curing agent for epoxy resin molding compns. of diglycidyl ether of bisphenol A)

RN 123-81-9 HCA

CN Acetic acid, mercapto-, 1,2-ethanediyl ester (9CI) (CA INDEX NAME)

